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CONTENTS.

An Asterisk (*) Denotes an Illustrated Article.

OFFICIAL NOTICE—

Second Annual Meeting, Pennsylvania Gas Association 529

EDITORIALS—

Sixth Annual Meeting, Illinois Gas Association—[Special Correspondence by Telegraph] 529

Briefly Told 530

Obituary Note, Mr. Arthur Tappen Averill—In Memoriam: Austin Cook Wood.

*An Improved Multiple Ammonia Washer 531

Fortieth Annual Meeting, New England Association of Gas Engineers—Continued from page 486 532

Report of the Secretary and Treasurer—Nominating Committee—*Some Single Unit Installations, by Mr. B. J. Bean.

Report of Proceedings, Fourth Annual Meeting, American Gas Institute—Continued from page 491 535

*Sulphur Compounds in Illuminating Gas, with Particular Reference to the Testing for Hydrogen Sulphide, by Mr C. J. Ramsburg—Concluded—Discussion.

Second Annual Meeting, Indiana Gas Association, Held in the Claypool Hotel, Indianapolis, Ind., Jan. 19 to 20.—Continued from page 541 538

Report of Committee on Place of Next Meeting—Discussion—Report of Nominating Committee—Address by Hon. H. M. Dowling—Report of Committee on President's Address—Changing Over of a Plant from Natural to Artificial Gas, by Mr. B. H. Danforth.

*The Progressive Association of the Baltimore Consolidated Gas and Electric Light Company 540

*Automatic Pressure Ohanger for Station Governors 541

Recent Patent Issues 541

Book Reviews 541

Meeting Times of the Various Gas Associations 542

ITEMS OF INTEREST FROM VARIOUS LOCALITIES 542

Death of Mr Frank E. Beedy—Ogden (Utah.) Gas Company's Bonds—Lackawanna County, Pa., Towns to Have Gas—Mr. C A. Greenridge Joins Staff of J. G. White Co.—Public Service Corporation of New Jersey, Bonds—Extensions at Marlboro, Mass., Charlestown, S. C., Grand Rapids, Mich., Albany, N. Y., Salt Lake City, Utah—Changes at Mankato, Minn.—Gas for Public Lighting at Wilmington, Del.—Hearing on 80-Cent. Gas Bill Covering the 30th and 31st Wards, Brooklyn—Reduced Rates at Brovidence, R. I.—Election at Macon, Ga.—February Earnings at Denver, Col.—Merger at Dayton, O.—Franchise at Sayre, N. Y.—High Pressure Gas Lighting for Textile Mills—Booklets from Indianapolis, Ind., and Lockport, N. Y.—New Incorporations—And Other Items.

The Market for Gas Securities 544

Public Lighting Tables for March, 1910 558

[OFFICIAL NOTICE.]

Second Annual Meeting, Pennsylvania Gas Association.

PENNSYLVANIA GAS ASSOCIATION,
OFFICE OF SECRETARY-TREASURER,
LEBANON, PA., Feb. 26, 1910.

To the Members of the Pennsylvania Gas Association: The meeting of the Pennsylvania Gas Association will be held in Easton, Pa., April 13, 14 and 15, 1910. Headquarters will be the Karldon Hotel. The following papers have been prepared:

"Distribution Shop Practice," by J. E. Arthur, Reading, Pa.

"Gas Meters from the Meter Man's Standpoint," by J. H. Mansur, Royersford, Pa.

"New Business: Methods for Solicitors' and Employees' Meetings," by George W. Thomson, Chester, Pa.

"Qualifications for Successful Manager of Public Service Corporation," by B. F. Cresson, Easton, Pa.

"Motor Cycle and Automobile Experience," by L. S. Williams, Harrisburg, Pa.

"Lecture on Illuminating Engineering," Norman Macbeth, Philadelphia, Pa.

"Lecture on Tar as Applied to Road Building," W. H. Fulweiler, Philadelphia, Pa.

"Gas Arcs: Installation and Maintenance," by J. H. Keppleman, Reading, Pa.

"Water Heating and Type of Apparatus for Residences," by H. D. Gillingham, Wilkes-Barre, Pa.

"Profitable Gas Advertising," by W. R. Rhoades, Williamsport, Pa.

"Burner Maintenance in Residence Districts," by F. J. Rutlege, Philadelphia, Pa.

"Coal Gas Manufacture," by W. H. Merritt, Lebanon, Pa.

"Experience with Measuring Devices for Air, Steam and Temperature as Applied to Water Gas Apparatus," by John A. Frick, Allentown, Pa.

Short Exchange Topics:

"Office Forms and Help," and "Maintaining Constant Candle Power During Year," by L. R. Dutton, Wyncote, Pa.

Arrangements have been made for a theater party, an informal dinner and to visit the plant of the Ingersoll-Rand Drill Company.

Everybody interested in the gas industry is cordially invited to attend. Respectfully, W. H. MERRITT, Secretary.

[Special Correspondence by Telegraph.]

SIXTH ANNUAL MEETING, ILLINOIS GAS ASSOCIATION.

HOTEL LA SALLE, CHICAGO, ILLS., March 15, 1910.

Dear JOURNAL: The Ides of March dealt fairly with us in the Western metropolis to-day, for although Boreas, the ancient, was evidently at work on the Lake, the members of the Illinois Gas Association, when not attending strictly to business within the walls of this magnificent hostelry, could stand an occasional windy gust, for the skies were as blue as were the grand Lake's depths, even though both were flecking of fluff and foam. The meeting room was the La Salle's beautiful parlor, but so numerous was the attendance that even its space was none too great. Promptly, at 10 A.M., President Emil G. Schmidt called the members to the tasks before them. There was neither Mayor, District Attorney nor other representative of the great city's government to greet the delegates, who, however, seemed not to miss anything through such formal lacking of civic greeting; in fact, as a prominent representative of the Peoples Company remarked, when business was actually underway, "Well, I'm glad all that 'bosh' about the freedom of the city was cut out." The programme order was carefully adhered to. First, there was the report of the Board of Directors, which showed that harmony of the finest sort had been characteristic of the by-work of the Association during the year, and that its affairs from any executive viewpoint had been progressively administered. This document was followed by the report from Mr. Strohn, as Secretary and Treasurer, and his presentments were of a nature well calculated to assure the Association that its objects and aims were being thoroughly kept in mind by the rank and file, as per the general and individual financial statements and membership listings. The election to membership resulted in the satisfactory addition of 26 names to the rolls, these bringing the total to the really wonderful number of 233. President Schmidt's address was next for consideration. For a fact, it was short, to a certainty it was attention attracting, especially to and for the younger ones in the

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MAR 21 1910
SMITHSONIAN DEPOSIT.

profession, quite a number of whom have laid themselves open to the charge that their companies' interests would be best subserved by the remembrance on the part of the adolescents that the public, even in its grouchiest mood, had certain rights which it would not be well to even seemingly override. The paper, by Mr. H. L. Rice, entitled "A Few 'Do's' and 'Dont's' for Small Coal Gas Works," was then read, and the author's pithy presentation was rewarded by a lengthy discussion, in which the three B's—Battin, Blossey and Barnes—showed to good advantage, as did Messrs. Russell, Hartman, Little, Howard, Newberry and Whipple. It is quite true, too, that the author well deserved the vote of thanks that was passed to him when his clever explanatory replies closed the discussion. The first session was terminated by the paper (it was read by Mr. W. J. Huddle) that had been jointly prepared by Prof. C. F. Burgess and the former named gentleman. Their theme was "The Calorific Value of Gas in Wisconsin Cities," and the authors are to be heartily congratulated on the excellence of their timely and exact communication on this matter, which every day receives greater attention from the thoughtful ones having to do with the illuminating conditions that are constantly taking on new features in our populous centers. The discussion was not altogether as extended as the importance of the subject aimed to warrant; but good references respecting the theme are to be credited to Messrs. Allison and Steinwedell, which discussion was most capably terminated by a few well-fitting explanations by Mr. Huddle. Just prior to adjournment an invitation from the Chicago Section of the Illuminating Engineering Society, to join with it at its noon meeting of the day, was accepted with applause, and many practically availed themselves of this fraternal token. The prelude to the afternoon session was the balloting for officers, the result of the voting being as follows:

President—Mr. A. S. Harrington, Chicago.
Vice-President—Mr. Irvin Rew, Chicago.
Secretary and Treasurer—Mr. C. B. Strohn, Elgin.
Directors—Messrs. H. T. Crawford, R. B. Harper, H. J. Mitchell.
Delegate, American Gas Institute—Mr. E. G. Schmidt.

The succeeding number was the results of "A Comparative Investigation of Oiling Methods, Oils and Diaphragms for Meters," which was the conjoint production of Messrs. H. B. Acker and C. C. Hotchkiss. The paper was read by Mr. Hotchkiss, and it led to a lengthy discussion. Both paper and discussion was of an order well-calculated to have them become matters for after-reference hereafter. The first day's sessions were closed by the paper on "Rates for Industrial Purposes," prepared and read by Mr. S. E. Wolff. This gentleman is not unknown as an author, and as one who when he writes has something to put forth, that is always well put forth. According to his record so was he here to-day. The theme is surely a perplexing one at best or worse, but Mr. Wolff had experience regarding theory to offer in support of his practice respecting the latter. The discussion that ensued was a good one. The banquet hall was the main rendezvous for the evening, and shortly after 7 the members and their guests were enjoying its pleasures. The after-proceedings were under the masterful conduct of Col. E. G. Pratt, as Toastmaster, which statement is positively enough for all to know that everything was as it should be. The chief speakers were Mr. C. H. Dickey (quite recovered from his recent illness, Heaven bless him) and Mr. R. C. Dawes. Their names are positive assurances that that which they had to say was well said. The evening was brought to a close by and through the aid of a vaudeville entertainment lasting an hour. That it was all to the good, inquirers have only to question the only "Jim." T. Lynn and modest Brother Day, whose faculty for putting night to rout is as potent as is the masterfulness of his family name, in its greatest significance. The man, however, to whom the great credit for this should be given is "Harry" I. Lea, who planned it out, and who "staged" it as well. Thus was a busy and an enjoyable night encompassed.—C. W.

CHICAGO, ILLS., March 16th.

Dear JOURNAL: The second day's session of the meeting was uneventful. The weather remained good, the attendance continued likewise, and the interest was unabated. The gavel proclaimed business at the hour of 10 A.M., and the first part thereof was the paper by Mr. L. H. Johnson, whose "Comments on Certain High Pressure Gas Distribution Problems," led to a useful discussion, in which that apt disciple of the practice (Mr. H. L. Rice) appeared to good advantage. The set programme was concluded by the consecutive reading of two papers, respectively, "Tar Macadam Roads," by Mr. F. E. Newberry, and "Tar Treatment of Roads," by Mr. T. P. Sharples. The paper by the latter was most interestingly supplemented by an excellent series of stereopticon views, nicely illustrating the practice and machinery involved in the construction of such roads in England, France, Germany and the United States. The discussion of these practical and up-to-date matters brought to a completely successful termination of a meeting lacking neither in technical value or fraternal unification.—C. W.

BRIEFLY TOLD.

OBITUARY NOTE, MR. ARTHUR TAPPAN AVERILL.—A life well lived was brought to temporal ending when death claimed Arthur Tappan Averill, for many years a respected and honored resident of Cedar Rapids, Ia. The end came the afternoon of the 14th ult., and it was all the more concerning since, although deceased had not been enjoying rugged health for quite some time, his condition was rather more favorable the morning of his decease than it had been for weeks. Arthur Tappan Averill was born in Highgate Springs, Franklin county, Vt., September 14th, 1843. When in his 9th year he was taken by his parents to Lea county, Ills., and in 1854 a further hegira to Whiteside county, Ills., was made by his family. His early schoolboy days were passed in Geneseo, Ills, and when in his 22d year (1865) he settled in Cedar Rapids, Ia., in which rapidly thriving city, then the center of some of the most fertile farming districts in the West, he became assistant in the warehouse of the local representative of the McCormick Harvester and Reaper Company. Later on he became the sole local agent for the McCormick concern, and in 1869 was appointed by the latter as Superintendent of all its agents in Iowa. In 1869 he induced Mr. John T. Hamilton (who had been his schoolmate in their earlier days in Geneseo) to come to Cedar Rapids and they formed the business firm of Averill & Hamilton, to deal in agricultural implements of all sorts, in seeds and plants, etc. This business prospered amazingly, and on the retirement (1874) of Mr. Hamilton from the firm the concern of Averill & Amidon was launched. Two years later the former purchased the latter's interest and for a time deceased conducted the trading on single personal account. In 1875, Mr. Averill had become a very potent factor in the business life of Cedar Rapids and recently he retired from active commercial trading to devote himself altogether to broader lines of business. He secured a controlling interest in the Cedar Rapids Gas Light Company, and became its President, which position he retained to the time of his death. The gas business had a peculiar fascination for Mr. Averill, and once well engaged in it he gave most of his time to its development. He was one of the earliest members of the Western Gas Association, and was a frequent attendant at its meetings, giving thereto freely of his experience and fertile suggestion. He was one of the organizers of the Iowa Gas Association and was its President as well. In other things material to the advancement of Cedar Rapids as a business center it may be mentioned that he was one of the organizers of the Cedar Rapids National Bank (organized in 1890) and retained the presidency thereof from its formation to the time of his death. As monuments to his faith in the stability of Cedar Rapids stand the Montrose Hotel and the Welch-Cook business building. He was also proprietor of the Vincennes (Chicago, Ills.) family hotel, which is one of the first-class hotel-apartment houses of the Western Metropolis. Socially his family and himself were naturally prominent, not only in Cedar Rapids but through the State of Iowa, the praises of which great State were frequently sounded by him. Of a personality that gained friends and held them, his death deprives Cedar Rapids particularly of a public spirited man, whose unostentatious charities were almost countless. His wife, who was a native of Cedar Rapids (Miss Alice R. Doolittle, their marriage occurring October 22d, 1867), was, as he often lovingly remarked, his greatest treasure, and to them were born a daughter (Miss Jessie) and two sons (Glenn M. and Arthur), of which the two first-named survive. The son is almost as pronounced a gas man as was his father in his liking for the industry, as the records of the Company and of the Iowa Gas Association amply attest. He was laid at rest in beautiful Oak Hill Cemetery the forenoon of Wednesday, the 16 ult. The services were private, owing to the severe illness of Mrs. Averill, and were it not for that sad circumstance Cedar Rapids would have witnessed virtually a closed city during the time given to the public services over its lamented dead.

IN MEMORIAM: AUSTIN COOK WOOD.—Through the courtesy of the Society of Gas Lighting we are enabled to publish the following minutes to the memory of Mr. Austin C. Wood, recently spread upon the record of that body: In memoriam of Austin Cook Wood, who departed this life, at his home in the city of Syracuse, New York, the 15th day of January, 1910. Mr. Wood was born in the beautiful New England town of Northampton, Mass., June 29, 1827. He received his education in his native town and continued to reside there until after his marriage, when he went West, finally settling in Syracuse, in 1856. He became connected with the old Syracuse Gas Light Company, first as bookkeeper, advancing gradually, and in 1863 received the appointment of Superintendent and General Manager. In this position he continued until January 4th, 1896, when the Company passed into other hands. He was one of that rapidly thinning out class of prominent gas men who, while lacking the advantages of a collegiate technical education, through inborn talent, close application to business and self study, rose high among their fellows. Not only was he very successful in the conduct of the business of his own Company, but his counsel and advice were largely sought by other gas undertakings, particularly in Central New York. He joined the American Gas Light Association, in its early days, serving as its President in 1886. He was an honorary member of the Western Gas Association. Mr. Wood joined our Society of Gas Lighting, December 20th, 1883. At the last annual meeting the Society, to show appreciation of his worth, transferred his name from the roll of active to that of honorary members. In days gone by, when younger and stronger, he frequently attended our meetings, and took an active part in our discussions as well as in our social intercourse. The gas fraternity at large lost in Mr. Wood a man who did much in his day to advance the best interests of the profession. We mourn the loss of a good, loyal, open-hearted friend; one of that kind of which this world holds none too many. Peace to his ashes.

Signed, A. H. STRECKER, W. H. BRADLEY, C. F. PRICHARD, } Committee.

[Communicated.]

An Improved Multiple Ammonia Washer.

The ordinary type of multiple ammonia washer, which aims to perform the purification of gas from tar, and a considerable proportion of its ammonia, by subdividing the stream of gas into minute streams or bubbles, through two or more stages, accomplishes this object by forcing the gas through channels which are closed with perforated plates and when the perforations in these plates become clogged with tar, lampblack or naphthaline, the passage of the gas through the washer is accomplished only by a very considerable increase in back pressure and the process of cleaning the perforations is a laborious and expensive one. It was with the thought and object of obviating the above difficulties that the type of washer, herein described and illustrated, was designed.

As shown by the illustrations, and especially in the drawing (Fig. 5), the special feature of the washer herein described consists in placing the perforated plates one above the other, each plate extending slightly further than the one below it, all being bent to a common angle sufficient to retain a pocket of gas proportional to the capacity of the washer and leaving an absolutely free and clear opening between the ducts. The edges of the perforated plates are serrated and the perforations diminish in size and increase in number from the bottom plate up.

It is at once apparent that the gas is thoroughly subdivided and washed in as many successive stages as there are perforated plates, three of which are found to be sufficient in ordinary practice. In case the washer is overloaded beyond its rated capacity, or should a part or all of the perforations in any of the plates become clogged up, there is practically no resultant back pressure, the gas passing at the serrated edges of the plates and being caught by the plate above on account of its projection beyond the edge of the first plate. The passage around the serrated edges gives a considerable washing effect, although, of course, not as much so as when passing through the perforations. At no time can a stoppage occur in the washer or excessive back pressure be experienced, and at no time does the gas receive less than three stages of washing even in case all the perforations were clogged up, which is extremely unlikely.

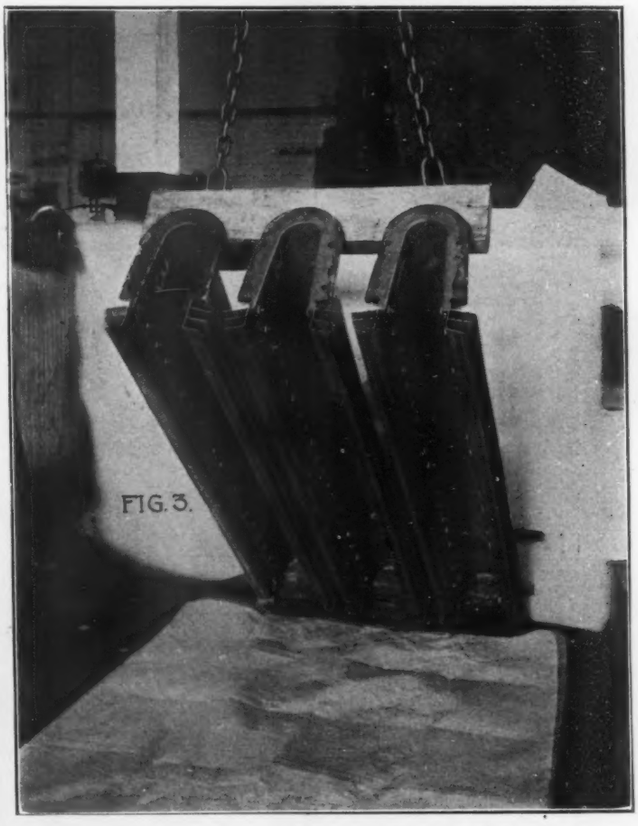
In case the perforations should become clogged the plates are easily accessible for cleaning, and can be steamed, in position, by means of a bent steam pipe, which it is unnecessary to describe in connection with this recital. The expense of construction and repairs is very materially decreased, since the plates are simply bent to the proper angle and bolted (the three together) to the ducts without the necessity of expensive and careful forming in frames and inclosed spaces.

When this design was first under considération an experimental section was made, consisting of a box glazed on two sides, with a duct and perforated plates submerged in water therein, as shown in the photographs Figs. 1 and 2. The first shows the washer acting under

normal conditions as to capacity, and the foamy appearance of the gas between the plates and at the surface of the water is readily seen. Fig. 2 was obtained by placing sheets of paper under the lower plates, thus closing off the perforations and requiring all the gas to travel past the serrated edges of the plates, as would be the case if the bottom perforations should become clogged up. The efficient washing

of the gas and its return to the pocket below the upper plates is readily seen through an examination of the illustration.

Fig. 3 illustrates the ducts with perforated plates attached, ready



for installation in a commercial washer, and Fig. 4 shows one of these washers in actual operation with the cover removed so that the operation can be observed. It will be noted that the surface of the water is uniformly beaten into a heavy foam in all parts of the washer. This condition obtains no matter how much or how little gas is passed through, as will be seen by reference to Fig. 1, where the experimental washer is being run under a small load.

The peculiar construction of this washer gave an excellent opportunity of ascertaining definitely by experiment its maximum capacity per lineal foot of ducts, and these experiments were accordingly made upon the washer illustrated in Fig. 4. Air was, of course, used for these experiments, and the results obtained were corrected for gas at a density of .4, .5 and .6 specific gravity. The washer shown in Fig. 4 was 3 feet by 5 feet by 2 feet in dimension and air was furnished by a No. 6 Sturtevant blower, driven by a 20-horse power Terry turbine, the amount of air being controlled by a gate valve in the air delivery line. The air was sent, first, through a No. 6 new model P. & A., as shown in Fig. 4, in order to obtain practical working conditions, and

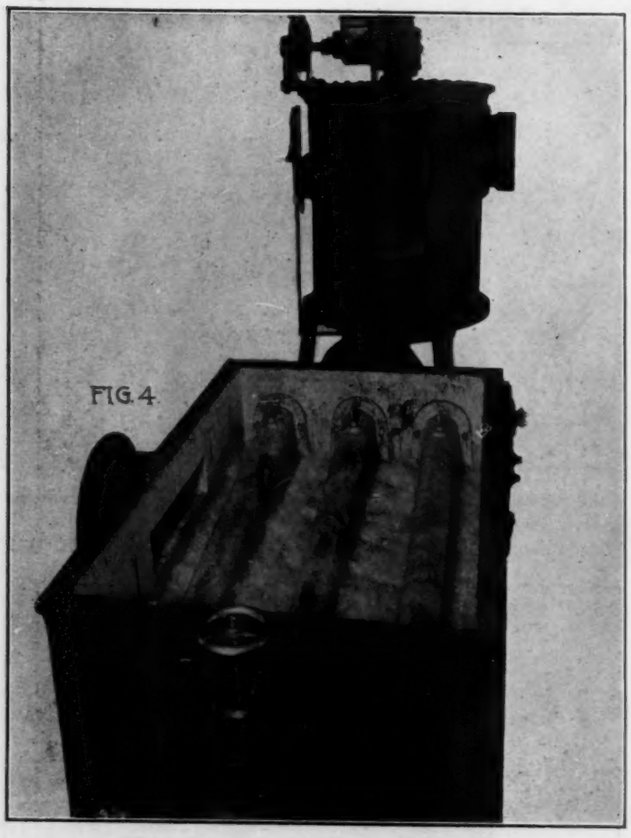
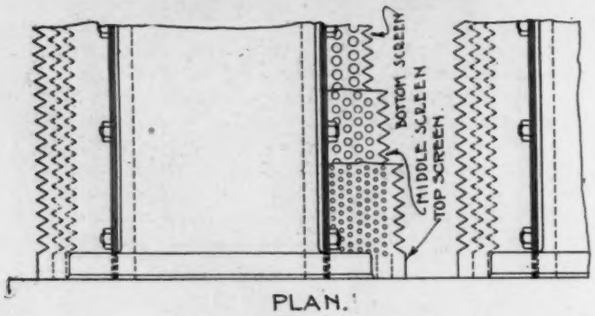
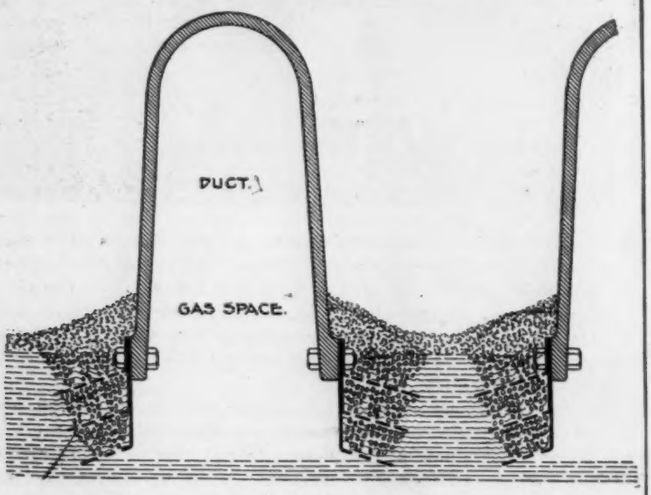


FIG. 4.



PLAN.



SECTIONAL ELEVATION.

FIG. 5.

the amount of air delivered to the washer was determined by Pitot tube readings in the ordinary way and the maximum capacity of the washer was decided by observation of the contained water and the escaping air. In this manner very accurate information regarding the capacity of the ducts was obtained, such as would be impossible with inclosed escapes.

This washer, which is manufactured by the Western Gas Construction Company, Fort Wayne, Ind., is used extensively in both water gas and oil gas manufacture, as well as in connection with the Holmes' rotary scrubbers manufactured by that Company for the recovery of ammonia from coal gas. The washer not only removes the last traces of tar and lampblack, but, in connection with the scrubber, absorbs from 25 per cent. to 50 per cent. of the ammonia contained in coal gas. On the last page of the AMERICAN GAS LIGHT JOURNAL, January 31, 1910, may be seen an illustration of a double deck washer with a capacity of 8,000,000 cubic feet per day, which was built on this design. The dimensions of this washer are: Length, 10 feet; width, 8 feet; height, 5 feet 3 inches, with 24-inch inlet and outlet connections divided into pairs of 20-inch diameter. This washer was particularly designed for the purification of oil and gas manufactured by the Pacific Gas and Electric Co., Oakland, Cal.

[PROCEEDINGS, AS FURNISHED BY THE SECRETARY.—CONTITUED FROM PAGE 486.]

FORTIETH ANNUAL MEETING, NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

HELD AT YOUNG'S HOTEL, BOSTON, MASS., FEB. 16 AND 17, 1910.

FIRST DAY—MORNING SESSION.

The President—We will now have the

REPORT OF THE SECRETARY AND TREASURER.

The Secretary—Mr. President and gentlemen: As Secretary I will report that at the last annual meeting of the Association there were elected 6 active members, 11 associate members and 3 resignations were received. Three deaths have occurred during the year. There are now on the roll: 4 honorary members, 145 active members and 96 associate members, a total of 245 members. As Treasurer I will submit the following report:

Treasurer's Report, 1909.—*Receipts.*

Cash on hand	$308,76	
Dues, '09	880.00	
" '08	65.00	
" '07	30.00	
" '06	10.00	
Admission fees	70.00	
Printing	15.00	
Dinners	524.00	
Books sold	5.00	
Report of meeting	158.00	
		$2,065.76

Payments.

Telegrams and telephone	$4.49	
Illustrations	80.85	
Express	2.02	
Library rent, books, etc	115.10	
Postage	9.80	
Typewriting	5.00	
Music	12.00	
Printing	168.12	
Hotel Expenses	585.65	
Stereopticon	10.00	
Proceedings '06–'08	361.84	
Flowers	31.27	
Reporting meeting	172.40	
Salary	300.00	
Cash on hand		$207.22
		$2,065.76

Funds.

Cash on deposit	$207.22
E. B. Saving Bank	361.59

Examined and found correct, N. W. GIFFORD, Treasurer.
DANA D. BARNUM,
BENJ. J. ALLEN.

On motion of Mr. Learned the report was accepted and placed on file.

The Secretary—Mr. President, I have quite a number of letters, one of which I will read:

NEW HAVEN, CONN., Feb. 14, 1910.

New England Association of Gas Engineers, Mr. N. W. Gifford, Sec'y.—Dear Sir: I am in receipt of your invitation to attend the the annual meeting of the New England Association of Gas Engineers. It would give me great pleasure to meet the old and new members, but business engagements will prevent my attendance. You have laid out a very intellectual menu, which is in marked con-

trast with the earlier meetings of the Association, when not a single paper was presented for discussion, and the first and about the only committee appointed was to prepare a banquet at the old Tremont House, and the Hon. Geo. Dwight, Engineer of the Springfield Gas Company, was always chairman of that committee. With the best of wishes for a successful and profitable meeting, I remain about the last of the Old Guard. Fraternally yours, F. C. SHERMAN.

I have a telegram from New York: "Best wishes for a successful meeting.—T. J. CUNNINGHAM." I also have letters of regret from J. T. Lynn, Detroit, Mich.; W. R. Addicks, New York; T. Stites, Gloucester, N. J.; W. C. Morris, New York; J. W. Dunbar, New Albany, Ind.; A. S. Miller, St. Louis, Mo.; W. Forstall, Philadelphia, Pa.; A. B. Eaton, Philadelphia, Pa.; D. R. Russell, St. Louis, Mo.; L. Lillie, Philadelphia, Pa.; A. E. Forstall, New York; H. L. Rice, Aurora, Ills.; R. E. Slade, New Orleans, La.; T. E. Byrne, New York. Our President has also received a very cordial letter from C. F. Higgins.

NOMINATING COMMITTEE.

The President—I will appoint as the Nominating Committee, Messrs. Prichard, Nettleton and Fowler.

Mr. Snow—Mr. President, I would suggest that as one of our members, Mr. Coffin, of Gloucester, who is a very familiar figure at our meetings, being always with us when he possibly can be, so we particularly notice his absence, having unfortunately met with an accident by falling and breaking an ankle, which will lay him up for 2 or 3 months, the Association send him a telegram of sympathy and best wishes. [Adopted.]

The President—The Secretary will see that such a telegram is sent. We will now listen to a paper, by Mr. Benjamin J. Bean, of East Boston, on

SOME SINGLE UNIT INSTALLATIONS,

The problem before the gas man to-day is to furnish a satisfactory means of illumination to compete with tungsten lamps equipped with prismatic reflectors. The purpose of this paper is to appraise you of facts concerning the type of unit chosen for this purpose by the company with which the author is connected.

The installations made have been very satisfactory, using inverted incandescent gas lamps placed in single units, equipped with bypasses and suitable shades, such as prismatic alba glass or where height permitted; in very low-studded stores flat shades or ball globes were used.

In most cases the lamps have been hung on straight pendants, brass-cased with sliding canopies, and when interior furnishings permitted, the lamps and pendants were furnished in verde-antique (dark mottled green), which was found to overcome to a great extent the objection of burner discoloration.

For each installation a plan was drawn by which suitable locations of the outlets were easily determined with the aid of the following rules and tables, as given in "Illuminating Engineering Literature."

Definitions.—The unit of light intensity is the "candle power." The unit of light flux or quantity is the "lumen." The unit of illumination is the "foot candle."

A lumen is the quantity of light which will produce the illumination of 1-foot candle over a surface of 1 square foot.

TABLE I.—*Intensity of Illumination Required for Various Classes of Service.*

Class of Service.	Foot Candles.
Storerooms, warehouses	5 — 1.5
Auditoriums	1 — 3
Churches	3 — 4
Residences, reading rooms	1 — 3
General stores	1 — 3
Dry goods' stores	4 — 7
Clothing stores	4 — 7
Desk illumination	2 — 5
Postal service	2 — 5
Drafting, engineering	5 — 10
Show windows	10 — 50

TABLE II.

Lighting Unit.	Nominal Consumption of Unit, Cubic Feet.	Factors. Lumens per Cu. Ft. of Gas —per Hour. Light Walls.	Light Ceiling.— Dark Walls.
Inverted lamps, clear cylinders, prismatic concentrating reflectors	3½	125	114
Inverted lamps, clear cylinders, prismatic distributing reflectors	3½	110	100
Inverted lamps, clear cylinders, French roughed ball globes	3½	95	70
Inverted lamps, clear cylinders, alba shades	3½	00	83

Rule 1.—Find the cubic feet of gas per hour by multiplying the area in square feet by the illumination in foot candles required (Table I.), and divide by the factor "lumens per cubic foot" (Table II.).

Rule 2.—To find the number of lamps required, divide the cubic feet of gas per hour by the nominal consumption of unit.

Single unit lamps should be suspended 8 to 12 feet above the floor, and the distance between outlets should not exceed twice the height of mantle centers to plane. With bowl-shaped shades, such as prismatic and alba (shown in Figs. 1 and 2), it is better practice to space

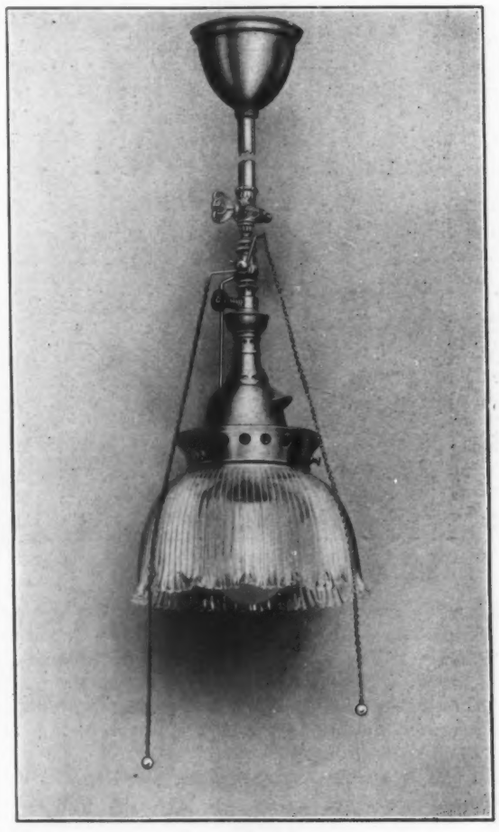


Fig. 1.

the lamps so that the distance between outlets does not exceed one and two-thirds the height above plane.

Fig. 3 shows the plan of a cafe 12 feet and 6 inches high, having a total area of 1,058 square feet including windows. From Rules 1 and 2, 1,058 by 3 (foot candles) divided by 90 (factor "lumens," etc.), gives 35.3 (cubic feet gas per hour); 35.3 divided by 3½ (nominal cons. of unit), gives 10.6 (number of lamps required).

Extensions were made from the central outlets and two rows of lamps evenly spaced were located down the ceiling, and ten single and one 2-light reflexolier in each window. Inverted lamps equipped with alba shades were hung on straight pendants with brass casing, supplemented by sliding canopies. Both the lamps and fixtures were finished in verde-antique, harmonizing well with the furnishings.

Although the number of lamps required for the intensity of 3-foot candles was eleven, 3 more lamps were used, one in the room proper for even spacing and uniform distribution and one extra in each window for appearance.

In Fig. 4 is shown a plan of an installation of a bar-room 56 feet 10 inches long, 15 feet 6 inches wide and 12 feet high.

Over the bar were hung 6 pendants evenly spaced, the height of mantles being 9 feet from the floor. The lamps in the rear of the room, hung in about the center of the floor space, provided ample general illumination for that section of the room. Two lamps hung on brackets behind the bar furnished adequate illumination for the sinks and faucets beneath the bar, which would be in part shadow without them.

In the windows was hung a 3-light reflexolier. Inverted lamps were used throughout equipped with prismatic distributing shades. Lamps, pendants and brackets were all finished in brushed brass.

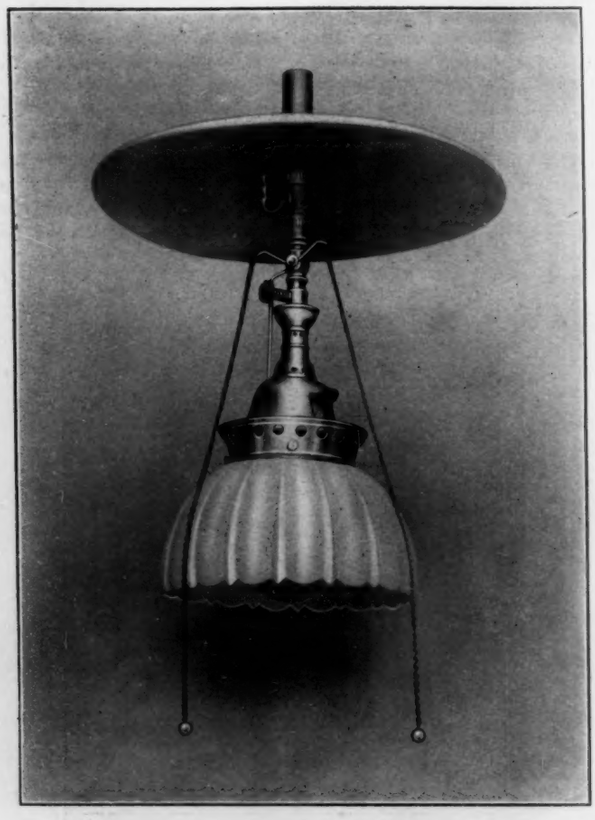


Fig. 2.

With this equipment, excluding the windows, the average intensity of illumination would be computed as follows: 27 (consumption) times 100 (factor, "lumens," etc.) divided by the effective area, 670 square feet, would equal 4.03 foot candles. Although the highest intensity of illumination was on the bar, the general illumination of the room appeared uniform, by reason of the reflection from the white walls and light ceiling.

Fig. 5 is a plan of a coffee and tea store, showing the location of lamps. The room, as seen, is irregular in shape, light ceiling and dark walls, with large window area. All the windows were open at back, allowing the lamps placed in them to aid in illuminating the store as well as the displayed goods. Twenty lamps, hung on straight pendants, equipped with prismatic distributing shades, were used for the total effective area of 1,745 square feet.

For this equipment the factor of 100 lumens per cubic foot of gas per hour, and the total consumption is, 67 cubic feet; $100 \times 67 = 6{,}700$ lumens, divided by the area 1,745, gives the average intensity of 3.84 foot candles. The goods displayed in the windows were crockery and glassware, mostly white, and the average illumination intensity there of 9.8 foot candles was ample.

It might be well, in closing, to explain why the company felt justified in the choice of this unit type of illuminant. The merchants of the community, probably no different from those of other small cities, required, first, sufficient illumination for their merchandise; second, the most efficient illuminant adapted in their stores, and, not the least important, a unit that was simple of design, yet artistic.

The stores were mostly irregular in shape and size and low-studded —that is, 12 feet or less. In consideration of the various types of lamps in vogue there are no remarks required, for the open flame burners and the use of single upright burners has never received general approval, so our attention may center about the feasibility of the arc lamp. The upright arc lamp, which is being superseded by the inverted type, scarcely needs to be commented upon; it is a thing of the past. The light sources of both types are concentrated, and the illumination efficiency considerably less than that of single inverted lamps. Considering efficiency of secondary importance, the lamps themselves are bulky and in some cases present a rather grotesque appearance It is possibly true that gas arc lamps still have a field in large areas where a wide distribution and low intensity are desired, but it might be well to mention that the electrical interests who, we

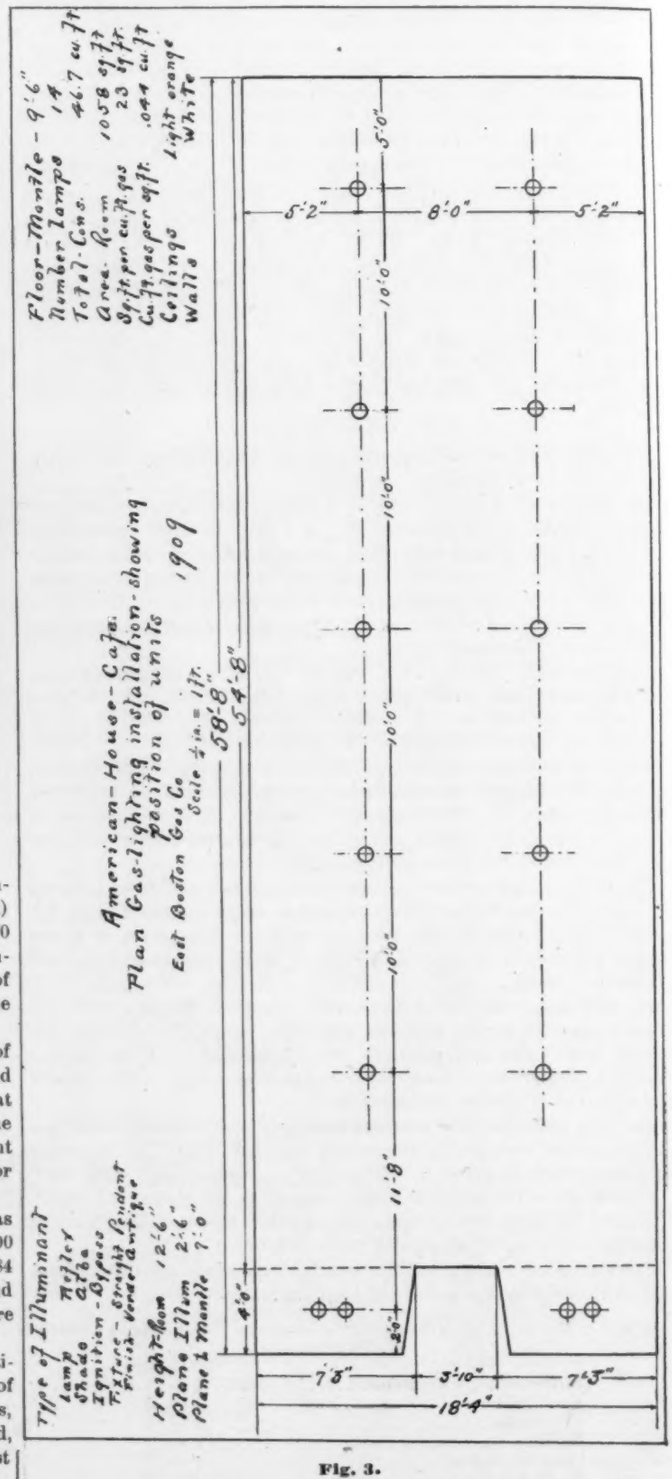


Fig. 3.

will have to admit, are more alive to the times than most gas interests have been, have discarded the arc lamp for window illumination even for large areas.

With a gas arc the amount of heat radiated from the globe, especially of the inverted type with a closed globe, has proven objectionable even in high-studded stores. In a low-studded store to place an arc lamp is to be absurd. The amount of heat generated by a 5-mantle arc lamp is doubtless nearly the same as that of 5 single mantle lamps, but apparently the amount of heat radiated to the lower portions of the room by the arc is far in excess of that by the latter. The apparent reason for this is that the air supply around the mantles in the inverted arc is induced from above, as is the air for the combustible mixture, and this downward induction tends to confine the heated air in the globe, thence heats the globe; and it has been our experience

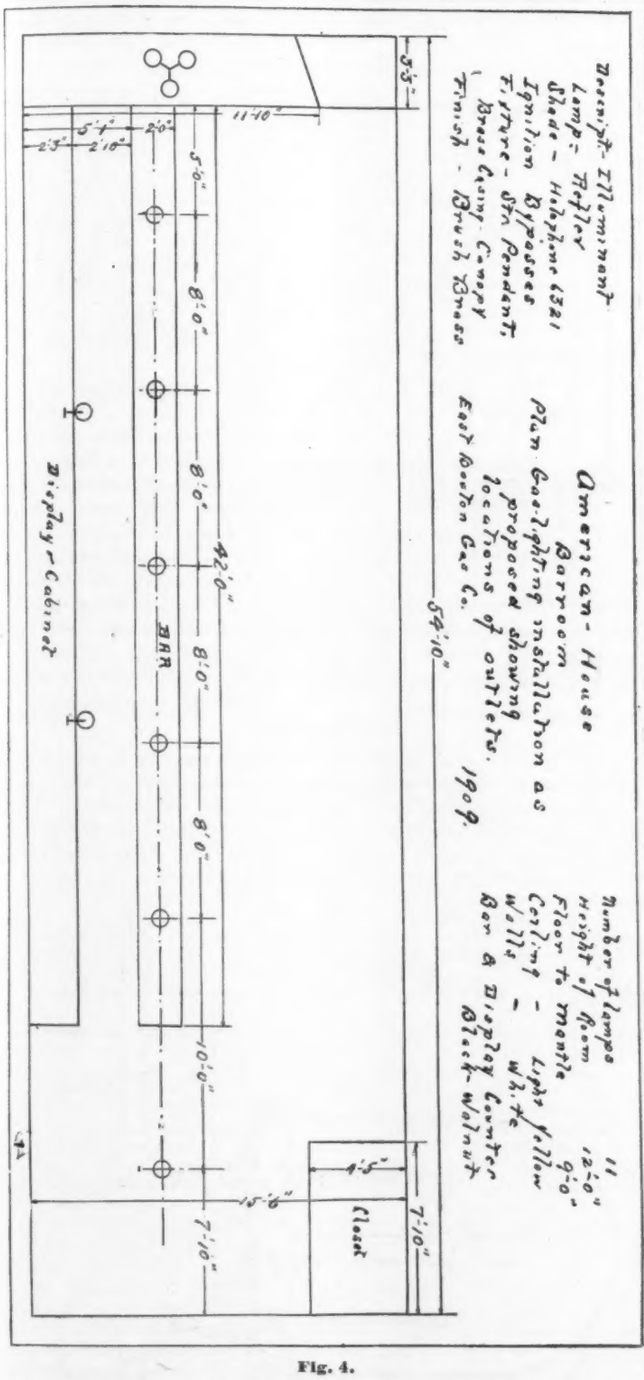


Fig. 4.

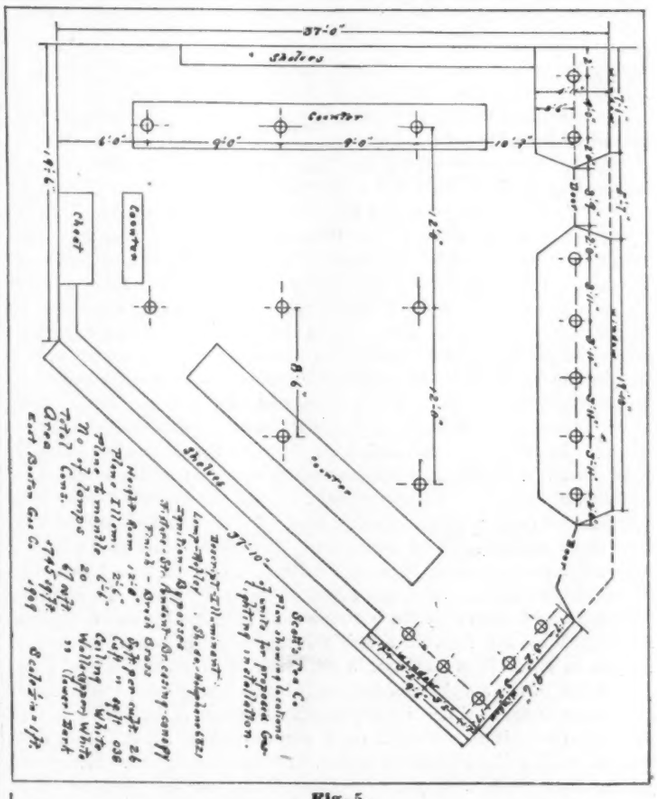


Fig. 5.

that considerable heat is radiated from the globe to the lower portion of the room.

In a single inverted burner there is a continuous supply of cool air passing up through the burner, which, when heated, flows upward, carrying the heat to the upper part of the room, thence escaping through the walls and ceiling.

There are those who conceive the inverted single units to be objectionable on account of more pilots to care for, more glassware to care for and more lamps to light and extinguish than would be were arcs used. All agree that it is advantageous to both the gas company and the consumer that lamps, regardless of type, be regularly maintained by the company, and it has been our experience that the single-unit installations have been so highly satisfactory in illumination efficiency that consumers were easily induced to have their lamps maintained though the cost of the same might be in excess of that of arc lamps.

The lighting and extinguishing of lamps in large stores, etc., is usually done by the porter or janitor, and in the smaller stores, where the number of lamps is comparatively small, the item of convenience is superseded by the advantage to the consumer of being able to use some or all of his lamps as he desires.

Summarizing, after due consideration of the types of lamps available, the single unit, embracing the advantages of high illumination efficiency, adaptability, permitting uniform distribution, convenience, negligible amount of downward heat radiation and artistic appearance, were found to be more satisfactory for the use of our locality than any other.

(To be Continued.)

[Continued from Page 491.]

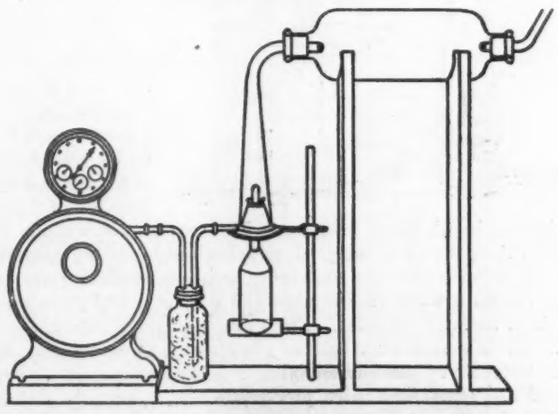
REPORT OF PROCEEDINGS, FOURTH ANNUAL MEETING, AMERICAN GAS INSTITUTE.

Held in the Hall of Elks, Detroit, Mich., October 20, 21 and 22, 1909.

Second Day—Afternoon Session, Oct. 21, 1909.—*Technical Session.*

SULPHUR COMPOUNDS IN ILLUMINATING GAS, WITH PARTICULAR REFERENCE TO THE TESTING FOR HYDROGEN SULPHIDE.—*Concluded.*

Appendix A.—*Letheby Test for Sulphur Compounds in Use up to 1872 in England.*



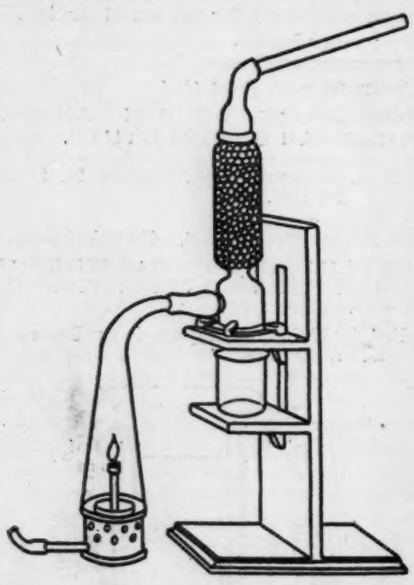
The gas, after passing through a meter to measure the quantity, is introduced into a bottle filled with small pebbles, wetted with sulphuric acid diluted in the proportion of 20 fluid ounces of strong commercial sulphuric acid to 30 fluid ounces of water, the object of

which is to absorb all the ammonia. The inlet tube to the bottle passes 1 inch only through the cork, while the outlet tube reaches nearly to the bottom of the bottle, by which arrangement the gas is forced to pass downwards through the wetted pebbles.

The gas thus freed from ammonia is burned with a Leslie burner, placed under a long funnel-shaped tube, at the rate of about ½ foot per hour. The upper part of this tube is connected to the end of a large glass receiver, the other end of which is fitted with a glass tube, about 4 feet long, so arranged that any products of combustion condensed in it will flow back into the large horizontal receiver. The flame is supplied with the vapor of ammonia from a wide-mouth bottle filled with the strongest liquor ammonia, and covered with an inverted funnel, the tube of which passes through the center of the burner about 2 inches. The draught produced through the apparatus when the gas is burning is sufficient to cause a copious supply of ammonia vapor. Immediate combination ensues between the ammonia and the sulphur products of the consumed gas, and the liquid from the condensed vapors flows with the water of combustion into the receiver. During the combustion of the gas the following changes take place: The hydrogen unites with the oxygen of the atmosphere and forms water; the carbon constituents of the gas also unite with oxygen and form carbonic acid; and the sulphur and ammonia combine and form sulphate of ammonia. The condensed liquid products of combustion, on being carefully collected, will be found to weigh about 350 grains for every cubic foot of gas consumed. Pure nitric acid is added to drive off the carbonic acid, the evolution of which is facilitated by the heat of a spirit lamp. A solution of nitrate of baryta, or chloride of barium, is then added in excess, and a white precipitate of the sulphate of baryta is immediately produced. After standing for some time, the supernatant liquor is carefully poured off, and the salt is collected on a counterpoised filter. It is then washed with boiling distilled water, dried and weighed. Every 117 grains of sulphate of baryta so produced indicate the presence of 16 grains of sulphur, consequently the quantity of sulphur in any form in 100 cubic feet of gas can be thus calculated.

APPENDIX B.—*Referees' Sulphur Test—Originated by Gas Referees'—In Use Since* 1872.

The apparatus to be employed is represented here and is of the following description: The gas is burnt in a small Bunsen burner with



a steatite top, which is mounted on a short cylindrical stand, perforated with holes for the admission of air, and having on its upper surface, which is also perforated, a deep circular channel to receive the wide end of a glass trumpet tube. There are both in the side and in the top of this stand 14 holes of 5 millimeters in diameter, or an equivalent air way.

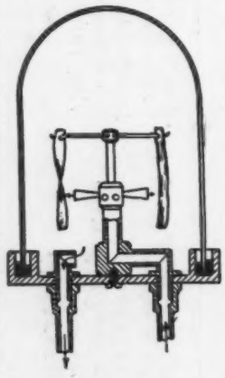
On the top of the stand, between the narrow stem of the burner and the surrounding glass trumpet tube, are to be placed pieces of commercial sesqui-carbonate of ammonia weighing in all about 2 ounces. The products both of the combustion of the gas and of the gradual volatilization of the ammonia salt go upwards through the trumpet tube into a vertical glass cylinder with a tubulure near the bottom, and drawn in at a point above this to about half its diameter. From the contracted part to the top the cylinder is packed with balls of glass about 15 millimeters in diameter, to break up the current and promote condensation. From the top of this condenser there proceeds a long glass pipe or chimney slightly bent over at the upper end, serving to effect some further condensation as well as to regulate the draught and afford an exit for the uncondensable gases.

In the bottom of the condenser is fixed a small glass tube, through which the liquid formed during the testing drops into a flask placed beneath.

This liquid is then tested for sulphur in the usual way.

APPENDIX C.—*Referees' Test for Sulphurretted Hydrogen in Use from* 1877 *to* 1906.

The gas shall be passed as it leaves the service pipe through a small governor and thence through an apparatus in which are suspended slips of bibulous paper, impregnated with basic acetate of lead.



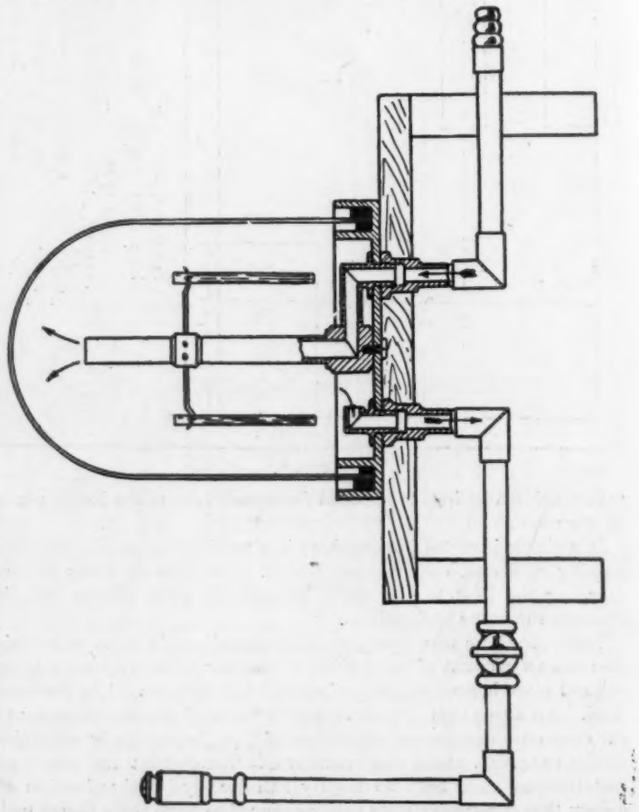
The test papes from which these slips are cut is to be prepared from time to time by moistening sheets of bibulous paper with a solution of 1 part of sugar of lead in 8 or 9 parts of water, and holding each sheet while still damp over the surface of a strong solution of ammonia for a few moments. As the paper dries all free ammonia escapes.

If distinct discoloration of the surface of the test paper is found to have taken place, this is to be held conclusive as to the presence of sulphuretted hydr ogen in the gas. Fresh test slips are to be placed in the apparatus every day. In the event of any impurity being discovered, one of the test slips shall be placed in a stoppered bottle and kept in the dark at the testing place; the remaining slips shall be forwarded with the daily report.

Gas passed 10 feet, autematically cut-off.

APPENDIX D.—*Present Referees' Test for Hydrogen Sulphide—Originated in* 1906.

"The gas supplied by the company shall not exhibit any trace of sulphuretted hydrogen when tested in a mode to be from time to time prescribed and certified by the gas referees for testing and recording the presence of sulphuretted hydrogen, which mode shall not be more stringent than the mode prescribed in Schedule A of the Gas Works' Clauses Act, 1871." (London Gas Act, 1905, Sec. 6.)



The apparatus to be used in testing gas for the presence of sulphuretted hydrogen is represented above. The gas as it leaves the service pipe shall be passed through the glass vessel in which are suspended slips of bibulous paper which have been recently moistened by dipping them in a solution consisting of 6.5 grams (100 grains) of crys-

tallized acetate of lead dissolved in 100 cubic centimeters of water. One testing shall be made daily.

In making the testing gas shall be turned on to the apparatus and lit at the burner as soon as the air has been swept out. When the gas has burnt for 3 minutes it is to be turned off, and one of the slips of paper is to be compared with another similar slip which has not been exposed to the gas. The gas is to be taken as exhibiting a trace of sulphuretted hydrogen if the slip of paper which has been exposed to it is unmistakably the darker of the two.

In this event two of the test slips which have been exposed to the gas shall be placed in a stoppered bottle and kept in the dark at the testing place; one of the remaining slips shall be forwarded with each daily report, and the comparison slip shall be retained by the gas examiner for the use of the chief gas examiner.

The gas examiner in making his return shall write either "present" or "absent" as the case may be.

APPENDIX E.—*Method of Estimating H_2S in Gas.—Hornby's "Gas Engineer's Laboratory Handbook."—Page* 137.

The gas is slowly passed through an acid solution of cadmium chloride, contained in a couple of Woulff's bottles, and is then measured by means of an aspirator of meter. After passing a quantity of gas at the rate of about ½ cubic foot per hour, the bottles are disconnected, and the precipitated cadmium sulphide is washed on to a filter; the contents of the filter are then placed in a beaker with distilled water, and bromine added in excess so as to oxidize the CdS to $CdSO_4$.

The bromine is driven off by heat, the resulting solution filtered and washed, and the filtrate ($CdSO_4$) is then treated with an excess of BaCl, which precipitates $BaSO_4$. This is washed, dried, ignited and weighed in the usual manner.

Discussion.

Mr. Hinman—I have listened with much interest to this paper, I quite agree as to the comparative innocuousness of a trace of sulphuretted hydrogen, but there are some conclusions which I think unwise. The author says: "At the present time in this country there are but 4 States, and the District of Columbia, where the amount of sulphur content is the subject of law; namely, Wisconsin, Massachusetts, connecticut and New York. Following closely the old English laws, and probably somewhat blindly, the total sulphur permitted is 20 grains." I think the expression "somewhat blindly" is rather unfortunate. I am personally responsible for any legislation in Massachusetts that was passed on sulphur. The legislation was passed nearly 30 years ago, and I had been testing the gas of the principal companies of Massachusetts for some 6 or 8 years. I found in such tests there was usually only about ¼ of the 20 grains; namely, something like 10 grains. It did not seem to me it would work any hardship to limit the companies to 20 grains of sulphur; but that is a minor point. The closing recommendation I think is advisable, namely, to allow 1 grain of hydrogen sulphide as a maximum in a 24-hour test. Now, in Massachusetts and New York there are 60 to 100 companies subject to test, and if such a law as that were passed, the immediate effect would be that the number of inspectors would have to be increased, and it would make a lot of work for the inspectors. As to the amount of sulphuretted hydrogen in gas, I do not know just what the limit should be, but I think it advisable to limit it so that the gas is not offensive to smell. I agree that it is entirely innocuous, except that it gives the consumer a chance to complain.

The Chairman—Is that gas unburned or burned, which smells bably?

Mr. Hinman—Unburned. I think anybody whose opinion is worth anything agrees that sulphuretted hydrogen is no more offensive than carbon bi-sulphide, or any other sulphur compound when it is burned.

The Chairman—Then, you consider that the odor of sulphuretted hydrogen in unburned gas is detrimental.

Mr. Hinman—It gives a chance for complaint, that is all. I do not consider it any disadvantage, other than that.

The Chairman—The argument might be that the more offensive unburned gas is the better?

Mr. Hinman—Of course, that is so. I have found in my experience that consumers are perhaps unreasonable in that respect.

The Chairman—I have often heard it said there is a strong odor from gas after being burned when there is sulphuretted hydrogen present. Of course, we know there cannot be very much to complain of in that direction.

Dr. Elliott—I want to enter a protest against any such statement as that. I state most emphatically that foul gas burned in an open flame or in a Bunsen burner will be disagreeable in a room in which it is burned; I have tried it many times. Foul gas cannot be burned with any comfort in a room in a house with the ordinary appliances.

Mr. Russell—I should like to ask Dr. Elliott to what the offensive odor is due? Why should there be a more offensive odor in the case of foul gas from hydrogen sulphide than with gas containing carbon disulphide or other sulphur compound?

Dr. Elliott—I cannot say any more than I can tell you that musk is offensive to some people and yet not to others. I venture to say that, taking two rooms, one with thoroughly purified gas, burning in any appliance in the room, open flame or otherwise, and taking another room where the gas being burned is foul, you can tell the difference, unmistakably.

The Chairman—Foul from sulphuretted hydrogen, doctor?

Dr. Elliott—Yes.

Mr. Klumpp—I cannot agree with Dr. Elliott in the statement that sulphuretted hydrogen when burned creates a disagreeable odor; such an odor comes only through incomplete combustion. He stated that 1 grain of H_2S was detectable when present in gas, I doubt it. Ordinary illuminating gas contains usually 10 to 20 grains of sulphur in shape of carbon bisulphide and other compounds and this he does not seem to detect when burned. Sulphuretted hydrogen burns to sulphur dioxide and water, while carbon bisulphide burns to sulphur dioxide and carbon dioxide. Both water and carbon dioxide are non odorous, hence they both form in common sulphur dioxide, as one grain of CS_2 forms nearly as much SO_2 as 1 grain of H_2S forms, I don't see how he is able to detect the quantity formed by the small amount of H_2S present. The only explanation to my mind is that any disagreeable odor is caused by incomplete combustion of the gas.

Mr. Hinman—I had intended to add to my remarks that if any legislation was recommended by this Institute I would favor the Connecticut test as a practical one. It has been tried for some years. It is my opinion that it is not unnecessarily severe, and it is fairly definite, so that it will not be left open to some overzealous inspector to unduly penalize companies, while it will still prevent any appreciable amount of sulphuretted hydrogen coming into the room.

Dr. Elliott—Will you please tell us what the Connecticut test is.

Mr. Hinman—It is to hold a piece of acetate of lead paper in the gas coming from an orifice $\frac{1}{32}$ of an inch in diameter under 1½-inch pressure for the space of 3 minutes. Having a scientific test for 1 grain or ¼ a grain, is stirring things up needlessly, making a whole lot of work for the inspectors and necessitating an increase in their number.

Mr. Russell—This is quite an important subject. The point is that the slight increase in the hydrogen sulphide does not cause in the burning any objectionable odor other than that due to sulphur dioxide, and I fail to see how it can, unless there is incomplete combustion, due to contact possibly with the metal surfaces of the burner or stove. We can better confine our attention to limiting the total amount of sulphur to a certain amount, and then we would not inconvenience the public any more; in fact, I think it would probably result in getting less sulphur compound into our gas, and at the same time we would cheapen the manufacture to some extent,

The Chairman—The cost of purification is most important; in fact, if you must have your gas so extremely free from sulphuretted hydrogen, you must have a large investment to take care of the peak load on the purifiers, which occurs only a few days a year. If the purifying system could be worked regularly there might not be such a cause for complaint, but it seems unjust to the gas companies to require them to carry such a large purifying system that they may take out the very minute amounts of sulphur that yet appear to my mind innoxious to the consumer. Are there any other gentlemen who wish to be heard on this?

Mr. Russell—Mr. Fulweiler says, "It is a well known phenomenon that old oxide containing a large amount of free sulphur will remove a considerable amount of carbon disulphide." Have any tests been made along that line?

Mr. Fulweiler—Some tests have been made, but unfortunately I do not happen to have the data with me. I know these tests have shown this to be the fact, and that it is probably due to free sulphur in the oxide. I wonder if Dr. Elliott's illustration was not particularly applicable when he said that the odor of musk, while pleasant to some people, is extremely unpleasant to others, and if he has an exceptionally unpleasant sensitiveness to SO_2? I personally have it accentuated. I catch it at the back of my throat—that may be from smoking too much; but I am sure it is not H_2S, because I have burned gas showing considerable quantities of H_2S, and did not notice any particularly disagreeable odor. I do not see how it is possible. As to the inspecting proposition, you now have tests in most of the States and it would not be very difficult to show that the test allowed a fairly definite quantity of hydrogen sulphur in the gas before it showed. Now, why does it necessarily increase the labor of inspection, if you increase the amount to some extent? It was shown very carefully that the Referee's test was $\frac{1}{10}$ of a grain of hydrogen sulphide in 100 cubic feet of gas. Why does it make the labor any greater if you increase that to 1 grain? I do not see how you increase the labor at all; you simply increase the quantity.

Mr. McKay—Replying to the question by Mr. Russell, as to the removal of CS_2 by free sulphur, in the course of some of our purification we have been able to remove 1 grain of CS_2 for every 66 grains of H_2S that was simultaneously taken out of the oxide. In connection with the consideration of odor, I wish to supplement the statement by Dr. Elliott, and to add that gas containing considerable quantities of carbon disulphide, 20 or 30 grains may be burned and, in my experience, has been burned, with no disagreeable odor resulting from such use of the gas; but similar gas carrying also a few grains of H_2S, when burned, undeniably contributes a disagreeable odor to the air in the room.

The Chairman—Have you any theory, Mr. McKay, as to what that is?

Mr. McKay—No. Much of the discussion dealt with the gaseous pro-

ducts resulting from complete combustion; but the possibilities of incomplete combustion are forcibly realized under some conditions, and chemical equations will not then disclose the weight of unburned H_2S that may issue from designed or accidental apertures, burner openings or minute leaks.

Dr. Elliott—I think it fair to state that I noticed this when we first had sulphurous oils from Ohio. We had great difficulty in purifying those rank oils. I know at that time it was very troublesome, and when the got better oils, and had some method of taking the sulphur out of them, we could use them and get along.

Mr. Hinman—I think it a rather astonishing doctrine to say that it does not make much difference in the labor of inspection whether you qualitatively or quantitatively test. The ordinary test for sulphuretted hydrogen in Connecticut, Massachusetts and New York can be made inside of 5 minutes, and I think it is quite a different proposition from having a 24 hour test, and then on top of that a determination of the amount of sulphuric acid.

Mr. Fulweiler—I think I have already stated about all I have to say on the subject, except that, if you would have the rate of the passage of gas in the present Referees' test, taken only for, say, 1½ minutes, you would determine just about 1 grain in a 100 cubic feet. If I understand Mr. Ramsburg's paper, it was his idea that, for regular routine work, you would not have to go through a precipitation of cadmium sulphide, but, by easily modifying the present methods that we have for testing gas, and making them a little less severe, we would simply raise the point at which the test showed to a figure which would approximate 1 grain. That could be done very readily by either shortening the time or by decreasing the rate of gas flow. You could retain all the old apparatus and the usual methods of making the test. For very occurate control of the work it would be very easy to use some form of precipitation test. By the way, I think there are several other methods of testing for H_2S which could be used, that would be rather easier than the cadmium sulphide test. That was simply suggested by Mr. Ramsburg.

(To be Continued.)

[Official Report—Continued from Page 541.]

SECOND ANNUAL MEETING, INDIANA GAS ASSOCIATION.

Held in the Claypool Hotel, Indianapolis, Jan. 19-20, 1910.

Second Day—Morning Session.

The President—Is the Committee on the Place of the Next Meeting ready?

Report of Committee on Place of Next Meeting.

Mr. Ott—There seems to be quite a division among the members of this Association as to where we should meet next time. There are two towns for which there seems to be a preference, Fort Wayne and Indianapolis. The argument for Indianapolis is that it is a centrally located place. It is very easy to get in and out. Fort Wayne is a good town, too. They have nice hotels there and good accommodations, and I think they would use us very nicely, at least we have the assurance that if we went to Fort Wayne some of the gas institutions there would try to do something in the way of entertaining our Association. I do not believe the Committee has any recommendations to make, only I personally would like to get away from this terrible noise here.

Discussion.

The President—Gentlemen, the committee has made its report. What will you do?

Mr. Barnes—I move we hold the next meeting in Indianapolis.

Mr. Dykeman—Last year Evansville extended to the Indiana Gas Association an invitation to come there. I am in favor of Evansville, but my second choice is Indianapolis, as the most centrally located city, easy of access and easy to get away from.

Mr. Thwing—I move that Fort Wayne be selected for the next meeting.

The President—It has been moved and seconded that Fort Wayne be chosen for our next meeting place. All in favor of Fort Wayne please rise.

The Secretary—There are 19 votes in favor of Fort Wayne.

The President—All in favor of Indianapolis please rise. Fort Wayne has been selected as our next place of meeting. [Great applause.] We will now have the

Report of the Nominating Committee.

Gentlemen of the Indiana Gas Association: Your Nominating Committee have unanimously chosen and respectfully submitfor your consideration the following names for officers of this Association for the year 1910-11:

President—Carl H. Graf.
Vice-President—S. E. Mulholland.
Secretary-Treasurer—Philmer Eves.
Directors—James W. Dunbar, J. A. Perkins, O. O. Thwing.

N. B.—The following Directors continue in office until the expiration of the terms for which they were elected January 21, 1909, namely: S. T. Murdock, term expires January, 1911; B. S. Walters, term expires January, 1911; E. A. Wakeman, term expires January, 1912.

Respectfully submitted,

D. Arthur Barnes,
A. G. Pickens,
Dan. Beers,
A. B. Davis,
} Committee.

The President—What is the wish of the convention with reference to the report of the Nominating Committee?

Mr. Pickens—I move that we accept it.

The President—It has been moved and seconded that we accept the report of the Nominating Committee. All in favor of the motion will say Aye. Contrary, No. [Carried.] We will now hear from our newly elected President.

Mr. Graf—Mr. President and Gentlemen: I do not know whether I have been elected or not. I suppose the acceptance of the report of the Committee elects the officers. I can hardly say, gentlemen, that "this is so sudden." All last night I was congratulated as being the next President, but I can honestly say that it didn't cast me anything. I have heard the acceptance responses of a great many incoming Presidents and they all say about the same thing, so I presume there is nothing for me to do but to fall in line and say I appreciate the honor conferred on me and will do my best to make the next meeting of the Indiana Gas Association even more of a success than this one. That is saying much, because I think this has been an unusually successful meeting. It means a lot of work and responsibility, but with such a Board of Directors as we have, and with the assistance of Mr. Eves, whom you saw fit to continue as Secretary, I know I will be relieved of a great deal of arduous work. I hope that next year, when we get together at Fort Wayne and the Secretary calls the roll, there will be more responses of active and associate members than there were this year. Let us make it as full a meeting as we possibly can. I thank you.

The President—Mr. Mulholland, our newly elected Vice-President.

Mr. Mulholland—Mr. President and gentlemen of the Gas Association, I have only this to say: I thank you and I appreciate it as an honor. I think that this Association has done credit and honor to itself in the selection of the new President. It is going to be an extremely hard place to fill, for the obvious reason that you all know without my mentioning it, that it has been so well filled during the past. I think you are not going to be disappointed in your new President, but he has a hard job ahead of him. As far as my office is concerned I fully appreciate the duties that devolve upon me. [Laughter.]

Mr. Graf—I should like to say, gentlemen, that as long as the next meeting place is Fort Wayne, the Vice-President's duties will be active.

The President—I know you will like to hear from Mr. Eves, our Secretary-Treasurer.

Mr. Eves—Mr. President and gentlemen of the convention, will you allow me to thank you once again for the honor you have conferred upon me by appointing me your Secretary-Treasurer. It is a great pleasure to do this work and help forward the interests of this Association and to have the support, as we have had in the past, of the excellent committees which have always been appointed.

The President—Mr. Dowling, who is to deliver an address to us, is now present, and we will suspend our proceedings, to be resumed after his address. Gentlemen, we are honored to-day by the presence of the ex-assistant attorney general of Indiana, a gentleman who recently has broken the record of politicians in leaving office by having resigned as a member of the railroad commission of Indiana. Incidentally I will state that he is a native of my own city, and therefore it gives me more than ordinary pleasure to introduce to you the Hon. H. M. Dowling, who will address you. [Great applause.]

Address by Hon. H. M. Dowling.

Mr. President and members of the Indiana Gas Association: When I was asked by one of your officers to make a brief address before your body to-day, I was somewhat in doubt as to what topics would be appropriate, and especially as to what subjects must be left untouched. I felt confident, however, that no *inflammatory* language should be used in a *gas* convention, lest a violent *explosion* occur. So, with the advice and consent of the courteous gentlemen who tendered me your invitation, I chose as my theme, the Commission Idea, as applied to the control of public utllities. While there has been much agitation upon this question in recent years, the control of quasi-public concerns by government has long been recognized. Sometimes it is exercised by a court, sometimes by a legislature; but men are coming to see that if the State is to have a voice in the management of a public utility, it should do so by means of a body possessing special qualifications for administering such control. Opponents of the Commission idea declare that it tends to extreme centralization; that local matters should be decided by local men; and that if the Governm ent takes a hand in corporate affairs, the

corporation will neglect to exert its own initiative until forced by the State to act. But it can be answered that all government is more or less government by a few; and while our States and the United States have become more centralized in the past 100 years, there is no diminution of individual rights, but rather an advance toward better conditions, Hence, this new form of centralized control portends no more ill than State Tax Boards, State Health Boards or an Interstate Commerce Commission. Nor should local questions always be locally decided. Often the presence of certain men in a community, or the prevalence of strong local feeling, militates against a cool, intelligent and just determination of a dispute over a franchise or a rate. And against the argument of loss of initiative it may be said, that the public utility usually has too much at stake to risk neglecting its duties or opportunities until pricked into activity by some State officer. There are, however, other alleged difficulties in the way of a commission for public utilities. The questions coming before such a body would ofttimes be intricate and perplexing; the men appointed to the positions of commissioners could not be expected to be gas, water, railroad, telephone, telegraph and warehouse experts combined; nor would it be possible to entirely eliminate politics from such a body, and hence it might degenerate into a powerful political machine. But no reasonable man would expect that the commission should be composed of men capable of solving complex technical problems on half a dozen differing subjects requiring technical skill, unless it were aided by expert advice. No public utility measure could hope to succeed in practice which did not provide ample means for securing the assistance of engineers and other experts whose special training would be at the command of the commission. Neither is the political argument sound; for such forebodings have not proved true of the State control over insurance companies, exercised by the Auditor of State; of State supervision exercised over business corporations by the Secretary of State; of State superintendence of the public health exercised by the State Board of Health, or of State control of railroads and telegraph companies exerted by the State Tax Board. Nor is there any greater reason to anticipate political intrigue in a public utilities body, composed of representatives of both political parties. Offsetting the objections thus made, it is to be noted that a tribunal, removed from the center of agitation, is for that very reason better qualified to pass judgment than one nearer home. If, in addition to this fact, the commission has the benefit at all times of expert assistance, and by reason of frequent consideration of questions of similar nature, has itself become expert in such controversies, the advantage of appealing to that body becomes apparent. But another reason suggests itself. That public utility, dealing with local officials, must enjoy an exceptional degree of popularity which does not arouse the antagonism and attract the adverse criticism of some members of the community. If it succeeds in securing a public contract, or if a rate is agreed upon, not confiscatory of the company's property, these critics immediately see visions of graft and irregularity and the tongue of slander becomes busy. If the matters out of which this calumniation arises could be presented to a distantly located and a disinterested body, the odium unfairly heaped upon an innocent company might be avoided. Finally, let it be remembered that a Public Utilities Commission would, if created, be another step in the direction of eliminating unnecessary differences between contending forces, and of reconciling conflicting views. That men in varied lines of activity are increasingly recognizing that they waste much time and energy in useless contests, needs only a casual survey of affairs of to-day to demonstrate. Witness the efforts of labor and capital to agree upon the wage scale, before resort to extreme measurers is adopted. Witness, too, the trend toward combination among business men, that they, being competitors, shall pursue the contest with the least amount of unnecessary friction as between each other. By the same token, our shippers and carriers are coming comfortably together in transportation clubs, the country over, to talk about differences and reduce them to a minimum, and realize more vividly the many points where their interests coincide. Even in politics, men are seeing that they are not so far from their political antagonists as they assumed, and the independent voter and representative are coming to the forefront as proof that after all the parties are not world wide in their differences. Religion and education feel the same conjunctive influence, for churches and colleges strive now with far less acrimony than formerly, but appreciate the common cause in which they and their competitors labor. The public utility idea is not altogether experimental. It is being tried elsewhere with fair success. It was suggested to the last General Assembly of our State, and it is not improbable that similar bills may be introduced at the coming session. It is to your interest to see that bad measures upon this subject are defeated, and I believe it equally to your advantage to see that some reasonable and conservative measure is adopted.

The President—Mr. Dowling, on behalf of the members of the Indiana Gas Association, I sincerely thank you for this very brilliant and eloquent address. In your address you have dwelt upon a subject that we more or less are considering and one that we will in all probability have to meet. I am sure we are highly appreciative and consider ourselves under many obligations to you. I have not asked for the usual rising vote of thanks to be given to you, because the attention and applause which attended your address and were given to you on the conclusion, testify the appreciation of every member of this Association more than any formal vote of thanks could. I am sure we all thank you and consider it an honor to have had you with us to-day.

Mr. Graf—Mr. President, before we go on with the regular order of business I would like to present the

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

This address is a straightforward, fearless and conservative exposition of the views of the representatives of the gas industry in the State of Indiana. Those views express a warranted alarm that, if not checked by respectful remonstrance and much needed information, legislation may be led by the mistaken ideas and dangers of popular clamor to ignore entirely the rights of the producers and the justice of their claims.

This Association is encouraged by the President's firm stand on this all important question and pledges itself to a combined and determined co-operation to hold up to public decision the justice or otherwise of any legislative statements or action detrimental to the common welfare of the gas companies and the people of this State.

Respectfully submitted, CARL H. GRAF, PHILMER EVES, } Committee.

Mr. Cooke—Mr President, I move that the report be put on the records.

The President—It is moved and seconded that the report submitted by Mr. Graf on the President's address be placed on the records. All in favor of the motion will say aye; contrary, no. [Carried.] The next order of business is the reading of a paper by B. H. Danforth, on

CHANGING OVER OF A PLANT FROM NATURAL TO ARTIFICIAL GAS.

For those who will have this change to make in the future it is deemed advisable to explain as briefly as possible the manner in which natural gas was received and distributed.

About 1889, when natural gas was piped into Indiana cities, the rock pressure of the wells was sufficient to supply more than the demand, and until 1894 a pressure of 320 pounds was usually maintained at the city reducing stations. From this time until 1900 the pressure gradually dropped to 8 or 10 pounds, and it then became necessary to build pump or compressing stations.

The greater portions of the high pressure lines were standard, heavy line pipe with recessed couplings. The field pressure was usually reduced to about 20 pounds at the edge of the towns and low pressure lines were supplied by district regulators—a type of governor. The district regulators were usually fed from belt lines that circled the city within a radius of from ½ to 3 miles from the center, and additional feeders were run through the heart of the business district and connected with the belt line at north and south or east and west points.

It is here appropriate to state regarding these belt lines that the engineers who laid out the systems for natural gas builded better than they realized and provided methods for artificial gas distribution they did not at the time contemplate. Regulators were set at points where the belt lines were connected with the low pressure lines, and no service connections were made from these high pressure or belt lines. At present, for artificial gas with these lines as feeders, it is possible to maintain sufficient pressure in the outlying districts of former natural gas cities. When the belt lines (which are now fed from the gas works) fail as efficient feeders, it will be possible to increase the pressure at points farthest from the works by setting regulators and supplying high pressure gas to the belt lines, and even to distant cities, and if at some time in the future the plans laid as above fail to provide sufficient pressure, it will be possible to go back to the old natural gas distribution system and use the belt lines exclusively for a high pressure distribution system with district regulators to feed the low pressure mains.

High pressure distribution has become quite common, and as regulators are necessary in the reduction of pressure, it is thought advisable, in the light of past natural gas experience, to state former difficulties with regulators set in vaults below the ground level. The regulators in vaults required about twice the attention given to those in houses built above ground for them. Rust and corrosion, especially on the stem and moving parts of the regulators, seemed to give the most difficulty, and the close, damp vaults made an ideal place for inspectors to become asphyxiated.

The low pressure mains for natural gas usually ranged from 6 to 10 inches in size, being slightly smaller than would have been put in for an artificial system, and were laid at a depth of 3 feet and generally parallel with the street grade. In changing from natural to artificial gas, it was necessary to place drips at the low places, drip pots not being necessary with natural gas, as the moisture which remained in natural gas after compression was condensed in what were termed "cooling ponds," the pipe lines running up and down the length of the pond. When converting to artificial gas many of the old natural gas lines were found to be trapped, and these traps were located by taking pressures and locating the points at which the greatest fluctuation occurred. With few exceptions the services had been laid to fall towards the mains and were nearly all 1¼ inches in size. Each service was provided with cock and curb box.

The street grades were usually followed and drips were placed at low points. Regarding the drips—these were made of wrought iron pipe and fittings at the main and drip risers; the average capacity of the drips ranging from 10 to 20 gallons. It is necessary with drips of this size to keep a drip wagon going all the time during the summer months, and half the time during the winter. Large drip pots would have reduced much of this expense. The natural gas mains were all divided into sections of about 9 square blocks, each section isolated by valves. The mains were tested in sections. Gas was fed through a 45-light tin meter from the artificial mains. The section tested was reduced to a 3-inch basis, and if the leakage exceeded the usual figure, the section was gone over with bars, and after the larger leaks were located and stopped the section was again tested and leakage figured.

The change from natural to artificial gas, as made in some cities where the natural gas plant had been abandoned for a considerable time, during which time the paving contractors, house movers and sewer diggers did as they pleased with the piping they knew was idle and thought would never be used again, was more difficult.

The gas supply for two natural gas cities in mind that are located about 29 miles from the city in which the gas works is located, is compressed at the works to about 15 pounds and delivered through 19 miles of 4-inch and 10 miles of 3-inch main line into holders in these two small cities. A portion of an old 8-inch high pressure line was used to carry this gas from the works to a point 3 miles distant, where it leaves the city pavement and connects with the 4-inch main line. The 8-inch line was tested with 80 pounds of compressed air and one leak was found. When the gauges at the works indicated 80 pounds pressure, a man was sent along the line during a heavy rain and found that the water on the pavement had bubbled in one place. Investigation resulted in the discovery of a leak in the pipe, caused in all probability by electrolysis. The balance of the line was tested with air as it was laid and charts were kept of the pressure. By observing these charts at the works it was possible to tell how the line was holding pressure, these tests being made on sections of about 3 miles, thereby determining whether or not the leakage of the new section was heavy. Gate valves were placed in this line about 3 miles apart. The line was laid to grade, and at all low points averaging along the country highway about ½ mile apart line drips were installed. The slightest leak was closed, collar leak clamps being used for collar leaks and sleeves for other leaks, the number of sleeves being sufficient to provide for the expansion and contraction of the line. After the line was completed a pressure of 80 pounds was put on the entire line, the compressor was then stopped and a 30-minute record was kept for 4 days of the gradual drop in pressure, and the corresponding leakage was determined between various pressures. After the high pressure line was tested and found tight, the low pressure or distributing mains in a city to be supplied were tested. It was not thought advisable to test with gas and air was tried and the pressure dropped almost as fast as it could be pumped into the mains. Water was suggested, but it was not thought advisable, as the low points in the mains would have been trapped and the system had no drips. As the gas would be dry when it reached this city and no drips were required the water test was abandoned. Then carbon bisulphide, mixed with air was suggested, but being unable to ascertain whether it had been used by others, and no experiment being desired, this was cast aside. About this time Mr . A. B. Davis, with the Indianapolis Gas Company, was consulted, and he suggested that 26 per cent. concentrated ammonia, a volatile liquid, be poured into the mains and forced through with air. A circular letter was then mailed to every citizen and notices published in the papers, the people being informed that a liquid having a strong odor was about to be pumped into the city gas mains, and all who noticed peculiar odors in thesr homes or on the streets were requested to notify the gas company. After the ammonia was poured into the mains the leaks were located with little difficulty. When repairs on the mains had been completed air was put into the system and the decrease in pressure was noted. A 45-light tin meter was then connected with the outlet of the holder and air was metered as it was fed from the holder into the mains. The meter indicated a leakage very much under what is considered good practice and the test was then called complete.

To remove all or nearly all of the condensation from the high pressure line which supplies these cities 29 miles distance from the point of compression, Mr. O. O. Thwing, Engineer of the Western Gas Construction Company, advised the placing of a receiving tank and regulator about 2 miles from the gas works. This being about 2 miles from the point of compression, it being thought advisable to collect, if possible, all the condensation at this one point, as the gas would contain very little moisture after compression and this travel. From this 2-mile point the line is reduced from 8 inches to 4 inches, and the tank and regulator were placed at the point of reduction, the tank being placed on the end of the 8-inch line with its outlet connected directly with a regulator, Mr. Thwing's idea being to decrease the pressure about 3 to 5 pounds as it left the tank, allowing the gas to expand at this point; the expansion naturally increasing the vapor tension and eliminating any remaining moisture liable to condense as the gas would be brought to rest in the tank and vapors allowed to condense at this point. As we have had the regulator working but a very short time, the practicability of this wrinkle has not be termined.

The artificial gas plant in cities having natural gas never flourished while natural gas was used, as few would pay $1 or more for gas, even of a uniform pressure, when natural gas could be purchased at ¼ to ⅓ of the cost. Frequently satisfactory arrangements were necessary with the city authorities before artificial gas could be turned into the natural gas mains, in some instances causing vexatious delay, and many who were accustomed to burning gas installed gasoline stoves or ranges and electric lighting, all of which were very hard to later displace, this condition making a very serious loss of immediate revenue when artificial gas was turned into the natural gas lines. In a majority of instances during these delays the natural gas systems were changed to properly distributing artificial gas.

(To be Continued.)

The Progressive Association of the Baltimore Consolidated Gas and Electric Light Company.

The men from the gas distribution division of the Consolidated Gas, Electric Light and Power Company recently celebrated the formation

of an organization known as the Progressive Association. A banquet, attended by some 200 members, was held at the shops of the Company on Front street, and addresses were made by Mr. H. C. Ross, father of the organization, who was the first to suggest its formation a year ago, Mr. H. K. Dodson, of the New Business Department, and Gen. R. N. Bowerman.

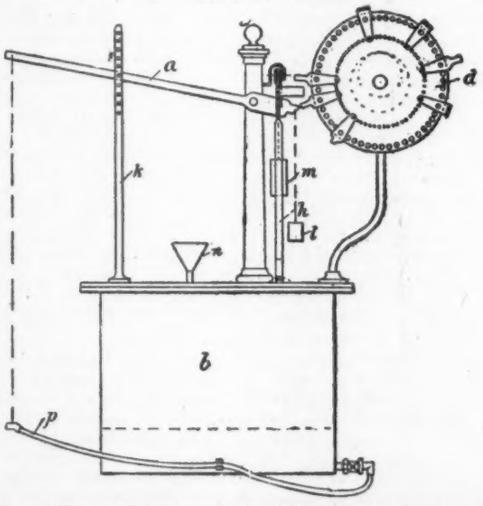
During the first year the Association made a study of the system of delivering and collecting material for gas appliance work, the system of receiving and distributing this material in the storeroom, the proper way of reporting material used by the workmen, the construction and working of gas meters, the proper method of piping a house for lights, the laying of mains, the cause and remedy of complaints due to services, appliances and house pipes, the best method of connecting water heaters, and the relations of the Company and the consumer.

Recently a contest came off in which five teams competed for the prize in a demonstration of first aid for persons overcome by gas The is demonstration took place on March 2d. Later in the month a practical demonstration will be given of the best methods of avoiding accidents and the care and operation of gas engines.

Automatic Pressure Changer for Station Governors.

Recent English Letters Patent (No. 5,242, of 1909) were granted to Francis Leigh, of Witney, England, for improvements in the device named in the heading. Referring to the drawings:

A tank, *b*, is mounted on the governor, and a stream of water, regulated by a tap, is continuously running into this tank through



the funnel *n*. The outlet from the tank is near the bottom, and consists of a short length of copper tube, a tap, and a piece of flexible metallic tube *p*. The free end of the flexible tube is connected by suitable means to a lever *a*, working easily on a steel bearing. This lever is fixed so that $\frac{5}{16}$ of its length is one side of the bearing, and $\frac{11}{16}$ on the other, thus securing an intensified movement when the short portion is moved. A counterbalance weight, *e*, is hung from the short end, in such a manner that the long end, together with the flexible tube it supports, is slightly the heavier, and will remain at the lowest position to which it is allowed to fall, and if raised will fall again as soon as the raising force is removed. The lever is raised by tappets fixed on a dial *d* which is rotated once every 24 hours by a clock. These tappets are of different lengths, so that they disengage themselves from the lever at different positions as it is raised. Thus the lever may be raised only a small portion of its full range by one tappet, or it may be raised its full range by a longer tappet. After the lever has been raised its required distance, it is caused to remain in that position (until it is released) by a catch *h*, which, working on a hinge, is pulled by a weight *m*, working on a pulley, over the lever, and engages one of a number of notches in the catch.

The lever is released as follows: The catch has fixed to itself at right angles, projecting towards the dial, an arm which engages another series of tappets that are bent at right angles to the dial to which they are fixed. These tappets engage with the arm of the catch and press it outwards, away from the lever. This allows the lever to fall, and the flexible tube at its far end, thus discharging the superfluous water load. These disengaging tappets may be constructed to allow the lever to fall the whole distance or one or more notches at a time.

The dial, which the clock rotates in 24 hours, has 48 or 72 holes drilled near its edge, according as it is required that each hole shall represent 30 or 20 minutes of time. A similar number of holes to those drilled near the edge is also drilled between the edge and the center of the dial. The tappets have a pin fixed at the end which points to the center of the dial. This pin fits into one of the inner holes, and a bolt put through a slot cut in the tappet opposite the outer hole, in a line with the center, fastens the tappet firmly to the dial with a nut. The tappet is easily moved into another pair of holes, if it is required to alter the time at which it does its work.

The tap fixed in the overflow pipe is used for regulating the amount of water which can be discharged in a given time after the lever is lowered, and is used (in conjunction with the inlet tap running a continuous stream into the tank) in such a manner as to insure a gradual reduction of pressure.

The lever is guided and kept in its position by rising and falling against a guide rod *k*, fixed near the center of its length. This rod is drilled at frequent intervals, so that a pin may be inserted at any point, to prevent the lever falling below that point. This is in case it should be necessary to temporarily prevent the minimum pressure being applied without interfering with the dial or tappets. The usual lowest position of the lever is arranged for by inserting a pin at the correct position through the guide rod, on which the lever rests when released and allowed to fall.

Recent Patent Issues.

Prepared for the American Gas Light Journal by Royal E. Burnham, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

950,597. Gas Lamp. A. H. Humphrey, New York City.

950,607. Art of Separating Various Materials from Gases. W. J. Baldwin, New York City.

950,734. Process for Manufacturing Incandescent Mantles. H. Sussmann, Berlin, Germany, assignor to Deutsche Gasgluhlicht Aktiengesellschaft Auergesellschaft, same place.

950,779. Apparatus for Manufacturing Gas. H. W. Benner, Chambersburg, Pa., and A. G. Kelterborn, New York City, assignors to International Gas Development Company.

950,891. Gas Stove Lighter. O. H. P. Clark, Indianapolis, Ind., assignor to Clark & Dugan, same place.

Book Reviews.

Illumination and Photometry.—W. E. Wickenden. McGraw-Hill Book Company, New York City. Price $2. This work has been prepared as a text book for students and contains much that is valuable, especially in the large quantity of matter, which is well covered with ample references. So many new and old terms have sprung into prominence in the last few years that the author may perhaps be forgiven for using more than one to designate the same thing, such as duty and efficiency. There seems to be no excuse, however, for the attempt to substitute efficacy for the latter. The author has wisely called attention to the necessity of giving the distance at which readings are taken when lamps are equipped with reflectors (p. 64), but does not do so himself when giving distribution curves (p. 146). The work is probably destined to have a larger sale among those connected with the electric than the gas side of the lighting industry, and we trust that the author's remarks on the hygienic aspects of the situation (p. 137) will be read with profit. That there is much work ahead for Chairman A. C. Humphreys and his Committee on Nomenclature and Standards of the Illuminating Engineering Society is brought most forcibly to our notice when we review works on the subject, and we trust that they will remove *incandescent* from the list of permissive terms and substitute mantle when referring to gas burners.

Modern Coking Practice.—T. H. Byron and J. E. Christopher. The N. W. Henley Publishing Company, New York City. Price 3.50. This work is well defined by its title and covers with ample illustrations the various methods employed in obtaining coke and other by-products in coking plants.

Producer Gas Fired Furnaces.—Oskar Nagel. Published by the author. Price $2. After a short introduction on gas producers the author covers the various types of furnaces employing this product, describing the applications in each of the industries separately.

The Gas World Year Book, 1910.—Published by the *Gas World*, London, England. Price $3. This valuable work is something more than its name implies, for there is much of interest besides the statistics. We find that there are 21 gas associations in Great Britain, many of which hold monthly meetings throughout the winter. There are 1,641 gas undertakings in Great Britain, with a total make of nearly 195 billions cubic feet, supplying 6,388,511 consumers and

731,284 public lamps, 80 per cent. of the latter being fitted with mantle burners. The "handy references" are well named as the technical data has been carefully selected.

The Gas World Analysis of Municipal Gas Accounts, 1908-9.—The *Gas World*, London, England. Price $4. The operating and financial statistics of 69 municipal undertakings are given in a most complete manner, and arranged so that the results in one may be readily compared with another.

Bulletin of Abstracts, Vol. 4, No. 2, Feb. 1, 1910, American Gas Institute.—The Bulletin contains the usual well assorted abstracts covering a wide range of subjects, which as a whole are well selected and edited. We believe that No. 1,421, describing a lighting installation, could have well been amplified by the statement that the maximum intensity at lowest cost could not be obtained by means of lamps using electricity as a source of power, and further that mirrored glass gives a much larger percentage of regular reflection than plain ribbed glass.

Public Service Commission Reports, 1908.—The reports of both Public Service Commissions of New York State are now available for distribution. Those covering the First District can be obtained at 150 Nassau street, New York city, and for the Second District, at Albany, N. Y.

Meeting Times of the Various Gas Associations.

American Gas Institute.—Annual meeting, October, 1910. New York City. Officers: President, Wm. H. Bradley, N. Y., City; Secretary, A. B. Beadle, 29 West 39th street. N. Y. City.

Canadian Gas Association.—Annual meeting, June, 1910. Hamilton, Ont Officers: President, J. S. Norris, Montreal, P. Q.; Secretary and Treasurer, A. W. Moore Woodstock, Ont.

Empire State Gas and Electric Association.—Annual meeting, Nov., 1910. New York City. Officers: President, C. R. Huntley, Buffalo, N, Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Gulld of Gas Managers of New England.—Annual meeting, December. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, A. K. Quinn; Newport, R. I.; Secretary, Walter G. Africa, Manchester, N. H.

Illinois Gas Association.—Annual meeting, time, March 15-16, Chicago, Ills. Officers: President, E. G. Schmidt, Springfield, Ill.; Secretary-Treasurer, C. B. Strohn, Elgin, Ill.

Illuminating Engineering Society.—Annual meeting, January —, 1911. Meetings of Sections, monthly. President, W. H. Gartley, Philadelphia, Pa.; Secretary, Preston S. Millar, 29 W. 39th street, N. Y. City. Sections: New York: Secretary, Albert J. Marshall, 227 Fulton street. New England, Secretary, L. D. Gibbs 39 Boylston street, Boston, Mass. Philadelphia, Secretary, F. N. Morton, Broad and Arch streets Chicago, Secretary, T. R. Beebe, 157 Michigan avenue,

Indiana Gas Association.—Annual meeting, January 10, 1911, Fort Wayne, Ind. Officers: President, Carl H. Graf, Indianapolis; Vice-President, S. E. Mulholland; Secretary-Treasurer, Philmer Eves, Indianapolis Gas Company, Indianapolis, Ind.

Iowa District Gas Association.—Annual meeting, time, June 23, 24, 25, 1910, Sioux City, Ia. Officers: President, Geo. H. Waring, Omaha, Neb.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ———— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, September, 1910; ———— Officers: President, B. O. Tippy, Grand Rapids, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April 14, 15 and 16, 1910; Jefferson City, Mo. Officers: President, W. A. Bixby; Secretary and Treasurer, C. L. Clary, Sikeston, Mo.

National Commercial Gas Association.—Annual meeting, December, 1910: Boston. Officers: President, E. N. Wrightington, Boston; Secretary, Louis Stotz, 36 West 39th street, New York City.

Natural Gas Association.—Annual meeting, May 17, 18 and 19, 1910; Oklahoma City, Okla. Officers: President, William H. McKenzie, Kansas City, Kas.; Secretary, T. C. Jones, Delaware, O. Editor Wrinkle Department, F. W. Stone, Ashtabula, O.

New England Gas Association.—Annual meeting, third Wednesday in February; Boston. Officers: President, W. H. Snow, Holyoke, Mass.: Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

Oklahoma Electric Light, Railway and Gas Association.—Annual meeting, May 18, 19 and 20, 1910; Oklahoma City. Officers: President, F. H. Tidman, Oklahoma City, Okla.; Secretary-Treasurer, Galen Crow, Guthrie, Okla.

Pacific Coast Gas Association.—Annual meeting, Sept. 20, 21 and 22, 1910, Los Angeles, Cal. Officers: President, W. B. Cline, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 925 Franklin street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April 13, 14 and 15, 1910, Easton, Pa. Officers: President, E. G. Holzer, Easton, Pa.: Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, December, 1910; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 1123 Broadway, New York.

Southern Gas Association.—Annual meeting, Feb. 16, 1910, Montgomery, Ala Officers: President, H. W. Frund, Salisbury, N. C.; Secretary-Treasurer, Jas. Ferrier, Rome, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. ————, 1910, Beaumont, Tex. Officers: President, R. B. Stichter, Dallas, Tex.; Secretary's office, 300 Commerce street, Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May 11 and 12, 1910, Milwaukee, Wis. Officers: President, R. B. Brown, Milwaukee, Wis.; Secretary-Treasurer, H. H. Hyde, Racine, Wis.

Items of Interest
FROM VARIOUS LOCALITIES.

MR. FRANK E. BEEDY, Superintendent of the Chelsea (Mass.) Gas Company, died at his home, 70 Grove street, Chelsea, the morning of the 1st inst. The funeral services were held at his late residence the afternoon of March 3d. The services were conducted according to the Elks rites, of which body (Chelsea, 938) deceased had been a prominent member. The Gas Company was represented by a delegation from the office force and works' ranks. Interment was made in Woodlawn Cemetery.

A CORRESPONDENT in Chicago, writing under date of the 10th inst., forwards the following: "It is officially announced that the $6,000,000 of 5 per cent. Ogden Gas Company first mortgage bonds are in reality unconditionally guaranteed, both as to principal and interest, by the Peoples Gas Light and Coke Company. As the bonds are a first lien on the Ogden Gas Company's properties, the guarantee of the Peoples Company ranks them just ahead of the latter's stock. Under the 1906 rating of the Chicago City Council authority was given the owners of the Peoples and the Ogden Companies to combine their business in such way as seemed desirable, whereupon the latter was leased to the former, so by the terms of the applying statutes of the State the Peoples Company obligated itself to pay both principal and interest of the bonds in question. The bonds live until 1945, and have been selling on the local stock exchange at 94, or so. Meanwhile, the refunding fives of the Peoples Company are selling around 103½, but these, of course, are general mortgage bonds. The Peoples Company is, by-the-way, soon to have to reopen negotiations for adjusting the gas rate for the 5 year period beginning February, 1911. The State law under which the city is empowered to fix the price not only of gas, but of electric light and telephone charges, limits such agreements to 5 years. Under the circumstances, therefore, before any contract can be granted to the Company, the Legislature must take action."

THE Scranton (Pa.) *Times*, of recent date, says that through the incorporation of a Company by certain people connected in one way or another with the Scranton Gas and Water Company, it will be enabled to compete with electricity in the future development of that part of Lackawanna county between the Scranton city line and Carbondale. To give the project a start, Mr. Joseph Jeffrey, Secretary-Treasurer of the Scranton Gas and Water Company, Mr. M. L. Speck, Chief Clerk, and Mr. J. B. Cummings, Superintendent of the Olyphant Water Company, have formed a corporation entitled the Riverside Gas Company, a charter for which was obtained from the Governor the last week in February. The headquarters of the Company will be in Dickson City, and it is proposed to pipe the surrounding and intervening boroughs of Blakely, Archbald, Mayfield, Jermyn, Winton, Olyphant, Throop, etc, piping the same for gas. It is not at all unlikely that a high pressure line will be laid from Scranton for the needed supply. The population of the districts concerned will likely exceed 20,000.

THE J. G. White Company informs us that it has completed arrangements under which Mr. C. A. Greenridge will become connected as an engineer in the operating department of that well-managed corporation. Mr. Greenridge is well-qualified to assume such a business connection. He graduated from the Stevens Institute with the Class of 1895, with the Degree of M.E., and shortly thereafter secured the position of Assistant to Engineer in the office of Ernest Flagg, the well-known Architect. From that employment he entered the service of the Mount Morris (N. Y.) Electric Light Company, and in 1898 joined the special investigation staff of the New York Edison Company. In 1902 he was put in charge of the steam-electric plant construction division of the Utica (N. Y.) Gas and Electric Company, subsequently becoming Superintendent of that division. In 1905 he was promoted to the position of General Manager of the Company's entire system of electric operation. He is an active member of the American Institute of Electrical Engineers, and is also a valuable member in Class B of the National Electric Light Association.

MESSRS. J. P. MORGAN & Co., and Drexel & Co., are offering the balance of an issue of guaranteed 5's, 50-year gold bonds, emitted by the Public Service Corporation of New Jersey. The price is 97 and interest.

MR. C. W. MORSE, Manager of the Marlboro-Hudson Gas Company, of Marlboro, Mass., denies that the properties are for sale. Quite to the contrary, it is proposed to extend the gas service to the outlying settlement of Marlboro.

THE Consolidated Gas, etc., Company, of Charleston, S. C., has arranged to replace the present small holders on the Carmon street site with a new 3-lift storage vessel up to retaining 800,000 cubic feet.

SUPERINTENDENT HELLEN, of the Grand Rapids (Mich.) Gas Light Company, has arranged for the increasing of its generating capacity in the placing of 12 new benches of 6's. The Company will also increase its distributing service by putting down 6 miles of mains.

THE proprietors of the Albany (N. Y.) Southern Railroad, which corporation owns and operates a gas plant in Rensselaer, N. Y., have determined to change over to water gas production, and will also make sensible additions to the main system. If we mistake not, the old East Albany Gas Light Company was the predecessor of the Rensselaer concern.

THE franchises and property of the Mankato (Minn.) Gas and Electric Light Company have been taken over by the Chicago syndicate which controls the plants at Stillwater, Redwing and Faribault. Mr. R. E. Brown will continue in charge at Mankato.

"EARLY this month, 100 students from the Detroit (Mich.) Central High School, were escorted through Station A of the Detroit City Gas Company, during which visit they were shown how gas is manufactured, especial attention being given to the parts of the process in which chemistry is prominent. Professors Adams and Rivert accompanied the boys; and, truth to tell, the Professors were as greatly interested in the inspection as were their charges.—B. S."

ON the 8th inst., in Georgetown, Del., the ticket for city officers that favored gas rather than electricity for public lighting was elected by a pronounced majority.

SOME days ago the Public Service Commission, Second New York District, heard the application of the parties in interest over the application for the right to manufacture and supply gas in the town of Babylon, and the villages of Babylon, Farmingdale and Amityville, Long Island. Decision was reserved, although there is no reason whatever for presuming that the asked-for permission will not be granted.

ON the 9th inst. a hearing was had in Legislative Committee, Albany, N. Y., over the bill which is proposing an 80-cent. gas rate for the districts—Coney Island, Sheepshead Bay, etc.—in the 30th and 31st Wards of Brooklyn Borough, by the Brooklyn Borough Gas Company. Amongst those who favored the bill were Senator Burlingame and that large-headed representative, Mister Warren J. Lea. The opposition was led by the Company's General Manager, Mr. J. J. Humphreys, ably assisted by counsellor Frank J. Gallagher and W. Kelly. Mr. Humphreys' presentation of the case was certainly a well-sustained, seemingly unanswerable argument.

CHIEF JUSTICE W. S. GUMMERE, in the Supreme Court of New Jersey, on the 5th inst., handed down an opinion in the test case brought on behalf of the Public Service Gas Co., as to its Newark division, under which it claimed the right to open the streets without first obtaining a permit from the city's street department. The Judge decided against the Company, in the course of which opinion he declared: "The charter of the Gas Corporation does not say it can tear up the streets of the city of Newark at its own will and pleasure, and I don't understand that the Gas Company can do as it pleases in the matter."

THE Utah Gas and Coke Company, of Salt Lake City, Utah, has contracted with the Western Gas Construction Company for a 40,000 cubic foot steel tank relief holder.

THE Providence (R. I.) Gas Company has issued a circular giving the rates of reduction in prices to consumers which were announced some weeks ago. The reduced rates go into effect on the April bill, presented in May, when the rate will become $1 per 1,000 cubic feet. The circular is as follows: "A discount of 10 cents per 1,000 cubic feet of gas consumed will be made to consumers who pay their bills on or before the 10th day of the month, making the net price to such consumers 90 cents per 1,000 cubic feet. When the 10th day of the month falls on Sunday or on a legal holiday, the discount period will be extended to the close of business the 11th. A rebate will be made to consumers who have paid their bills as rendered, within the discount period, and who use during the calendar year 1,000,000 cubic feet or more, as follows: 1 cent per 1,000 cubic feet (or 89 cents net) to consumers of 1,000,000 to 2,000,090 cubic feet; 2 cents per 1,000 cubic feet (or 88 cents net) to consumers of 2,000,000 to 3,000,000 cubic feet; 3 cents per 1,000 cubic feet (or 87 cents net) to consumers of 3,000,000 to 4,000,000 cubic feet; 4 cents per 1,000 cubic feet (or 86 cents net) to consumers of 4,000,000 to 5,000,000 cubic feet; 5 cents per 1,000 cubic feet (or 85 cents net) to consumers of 5,000,000 to to 6,000,000 cubic feet; 6 cents per 1,000 cubic feet (or 84 cents net) to consumers of 6,000,000 to 7,000,000 cubic feet; 7 cents per 1,000 cubic feet (or 83 cents net) to consumers of 7,000,000 to 8,000,000 cubic feet; 8 cents per 1,000 cubic feet (or 82 cents net) to consumers of 8,000,000 to 9,000,000 cubic feet; 9 cents per 1,000 cubic feet (or 81 cents net) to consumers of 9,000,000 to 10,000,000 cubic feet; 10 cents per 1,000 cubic feet (or 80 cents net) to consumers of 10,000,000 cubic feet or more. Said rebates to be paid by check at the end of the calendar year." The annual election of officers resulted in the re-election of all the officers of the past year. President, John W. Ellis; Vice-President, Newton D. Arnold; Secretary and Treasurer, Wm. P. Nye; Board of Directors, Newton D. Arnold, John W. Ellis, Isaac C. Bates, Henry D. Sharpe, John R. Freeman, Cyrus P. Brown, Webster Knight, Frank W. Matteson and Wm. L. Hodgman. The increase in the Company's output during the past year was 105,411,000 cubic feet. The entire output for the year 1909 was 1,298,918,000 cubic feet. In the last 11 years the total output has increased about 100 per cent.

AT the annual meeting of the Macon (Ga.) Gas Light and Water Company, held on the 4th inst., all the old officers and directors were re-elected. Judge Wm. H. Felton is Chairman of the Board. The Board elected H. T. Powell, President; W. G. Solomon, Secretary; Stuart Wood, Treasurer; R. M. Redding, General Manager.

FOR the month of February, in spite of the fact that the reduced prices on the products of the Company are in effect, the Denver (Col.) Gas and Electric Company had a good increase over the corresponding month of last year. The net earnings for February were $97,781, an increase of $3,300 over February of 1909, and $14,000 over February of 1908; bond interest and taxes were $34,763, leaving a surplus for the month of $63,017, an increase of $1,000 over last February and $11,000 over February of 1908. For the year ended February 28 of this year the net earnings were $1,090,961, an increase of $145,000 over the preceding year, and $268,000 over the year ended February 29, 1908. The surplus for the stock for the last year was $669,488, an increase of $108,000 over the year ended February 28, 1909, and $231,000 over the surplus for the year ended February 29, 1908.

THE merger of the Dayton (O.) Gas Light and Coke Company and the Dayton Gas and Fuel Company has been effected and the following officers elected: President, R. R. Dickey, Jr.; Vice-President, Edward W. Hanley; Second Vice-President, O. I. Gunckel; Secretary-Treasurer, R. R. Hooper; Assistant Secretary-Treasurer, W. B. Gebhart. Messrs. Dickey, Hanley, Hoper, Gunckel and H. C. Graves were chosen members of the Executive Committee. Directors were chosen as follows: Col. D. B. Corwin, H. C. Graves, R. R. Dickey, John A. McMahon, O. I. Gunckel, Col. Frank T. Huffman, Edward W. Hanley, C. G. Ogelsby, W. B. Gebhart, Bernard F. Wendler, H. R. Hooper and Joseph Light. With the exception of Messrs. Hanley and Wendler the directorate remains the same as that formerly constituting the Dayton Gas and Coke Company. The new Company will be known as the Dayton Gas Company and will supply both artificial and natural gas. It is capitalized in $3,000,000.

THE Lockport (N. Y.) Light, Heat and Power Company has issued a blue book which contains many interesting facts concerning their product, besides a very complete register of the *elite* of their city.

THE Peoples Gas Light, Heat and Power Company obtained a franchise from the city of Sayre, N. Y., on the 7th inst. The price of gas is not to exceed $1.25 per 1,000 cubic feet for illuminating purposes, and $1.10 for heating, power and mechanical purposes. The term of the franchise is for a period of 35 years, and the Company is to pay to the city as a franchise tax the sum of $150 on January 1, 1911; on January 1, 1912, $300; on January, 1, 1913, $350; on January 1, 1914, $450; on January 1, 1915, $500, and $500 on January 1 of each succeeding year that the Company does business in the city.

INCLUDED among the exhibits at the Japan-British Exhibition, to be held in London during the coming summer, will be one of considerable size covering the application of gas for various purposes. That it will be well worth a visit is assured by the fact that Mr. F. N. Goodenough is the Honorable Secretary and Treasurer of the committee in charge.

ACCORDING to the present arrangements, Hudson, Wis., is to have a gas supply by means of a high pressure line from Stillwater, Minn.

THE *Gas World* under date of Feb. 26, reports that at a recent meeting of the Textile Society of the Manchester School of Technology, Mr. Charles Walton read a paper on "High Pressure Gas Lighting for Textile Mills." From experience of an actual plant, the author stated that the renewal of mantles averaged 1.27 mantles per 100-candle power burner per annum, or, with mantles at 3d. each, 4d. per burner per annum. Relative costs, with gas at 3s. per 1,000 and electricity at 1½d. per unit, were given as follows, the unit of light being 1,000-candle hours: Flat flame 12d., ordinary incandescent 2d., high pressure 0.6d., electric carbon filament 6d., tantalums 3d., and osrams 1.87d. In the particular installation spoken of, the saving on gas was 53.66 per cent., and on total costs, allowing 10 per cent. depreciation, maintenance, etc., 28 per cent. The true comparison, however, was to be found in the cost per candle year. In one year, the cost for ordinary lighting, reckoned on this basis, was 5.41d.; the following year with high pressure lighting it was 0.728d. With electricity, it would be 1.76d., using osram lamps, and allowing a lamp a life of 1,000 hours, which was a high figure. Mr. Walton claimed to be fully justified in saying that, so far, the high pressure gas system was considerably cheaper than any other form of lighting suitable for textile works.

THE latest of the many handsome booklets issued by the Indianapolis (Ind.) Gas Company is entitled "A Message to Mothers and Others." We fancy some of the *others* who will ask Mr. Philmer Eves for a copy will be those in the business.

THE Trenton (N. J.) Power Company, capital $310,000, has been incorporated to operate water, gas and electrical works, etc.

THE Lincoln (Neb.) Gas and Electric Company state in their annual report for the past year that they added nearly 7 miles of mains and over 400 consumers to their system. The increase in gas sales totaled nearly 9,000,000 cubic feet.

THE Pressure Lighting Company, of Wilmington, Del., has been incorporated to buy, sell and deal in apparatus for lighting and extinguishing gas burners; with a capital stock of $1,000,000.

AT the annual meeting of the stockholders of the Duquesne (Pa.) Light Company the following officers were elected: President, George R. Webb, of Baltimore; Vice-President, D. P. Reighard; Secretary, John A. Cullen; Treasurer, Robert C. Hall. George R. Webb, D. P. Reighard, W. P. Constable and R. H. Binns were elected members of the Board of Directors.

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

MONDAY, MARCH 21, 1910.

The Market for Gas Securities.

The changes in values during the week were slight, although there was considerable trading in Consolidated. For instance, yesterday (Thursday) 1,900 shares changed hands on the Exchange at a range of 144¼ to 145⅜, and a net gain for the day of ⅛ point. As we have said time and again there are reasons in plenty why the stock on its intrinsic merit should be selling at the highest point ever recorded for it, and that is claiming quite a bit, when one remembers its flight past 240. We know that several good lots have been taken out of the market within a year, by people heretofore noted for investments on real estate account. Brooklyn Union is steady and strong.

In out-of-town shares, Peoples, of Chicago, was dealt in at 110, which is surely low for a 7 per cent. stock of its high class. Laclede common is 101 bid, and this security, too, looks tempting. During the week there was a sale at auction of an odd lot of Mutual, of New York, at 153½—and it surely was a bargain.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

MARCH 21.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$73,177,000	100	146	146¼
Central Union Gas Co. — 1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.— Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	2,500,000	100	155	165
New Amsterdam Gas Co.— 1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101¼
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	100	101
New York and East River— 1st 5's, due 1944, J. & J.	3,500,000	1,000	104	107
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union— 1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	—	75
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	151	155
1st Con. 5's, due 1948, M. & N.	15,000,000	—	95	99
Yonkers	200,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	.65	.70
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	509,000	1,000	90	96
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	73	73¼
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,000,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	92	93
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90¼	91
Preferred	3,026,500	100	75¼	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	—	105
Mortgages, 6's	3,600,000	—	—	118
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	458,000	—	102	105
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100½
Detroit Gas Co., 5's	381,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	103	103½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	200,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	36
Bonds, 1st 5's	3,832,000	1,000	102	104
Laclede Gas Co., St. Louis	10,000,000	100	100½	100¾
Preferred	2,500,000	100	—	98
Bonds	10,000,000	1,000	104	—
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	350,000	1,000	106	108¼
" 6 per cent. scrip, due 1910	100,000	25	60	60¼
Massachusetts Gas Companies, of Boston	25,000,000	100	80⅞	81
Preferred	25,000,000	100	96	96½
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	110	110¼
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104⅛	105⅛
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.— 1st Mtg. 5's	751,000	1,000	100	102
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgages, 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	90	95
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	100	104
Washington (D. C.) Gas Co.	1,600,000	200	335	336
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	361	—

Advertisers' Index.

New advertising, or changes in standing ads., to assure attention the issue following their reception, must be in hand on Wednesday.

GAS ENGINEERS. Page

Albert Ladd Colby, New York City ... 546
Bartlett-Hayward Co., Baltimore, Md. ... 569
Cruse-Kemper Co., Ambler, Pa. ... 556
Davis & Farnum Mfg. Co., Waltham, Mass. ... 568
Drakes Limited, Halifax, England ... 546
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Edwin E. Witherby, New York City ... 546
Evens & Howard Firebrick Co., St. Louis, Mo. ... 548
Frank D. Moses, Trenton, N. J. ... 554
Fred Bredel Co., Milwaukee, Wis. ... 551
Frederick J. Mayer, New York City ... 549
Fred. K. Wells, New York City ... 560
Henry I. Lea, Chicago, Ills. ... 568
H. M. Byllesby & Co., Chicago, Ills. ... 568
Humphreys & Glasgow, New York City ... 568
Improved Equipment Company, New York City ... 550
Isbell-Porter Co., Newark, N. J. ... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind. ... 561
Laclede-Christy Clay Products Co., St. Louis, Mo. ... 554
Lloyd Construction Co., Detroit, Mich. ... 558
Quintard Iron Works, New York City ... 557
R. D. Wood & Co., Philadelphia, Pa. ... 570
Riter-Conley Mfg. Co., Pittsburgh, Pa. ... 555
The Gas Machinery Co., Cleveland, O. ... 500
The Stacey Mfg. Co., Cincinnati, O. ... 561
The United Gas Improvement Co., Philadelphia, Pa. ... 563
Western Gas Construction Co., Fort Wayne, Ind. ... 528

GAS WORKS APPARATUS AND CONSTRUCTION.

Bartlett-Hayward Co., Baltimore, Md. ... 569
Connelly Iron Sponge & Governor New Co., York City. 565
Cruse-Kemper Co., Ambler, Pa. ... 556
Davis & Farnum Mfg. Co., Waltham, Mass. ... 568
Deily & Fowler Mfg. Co., Philadelphia, Pa. ... 559
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Evens & Howard Firebrick Co., St. Louis, Mo. ... 548
Fred Bredel Co., Milwaukee, Wis. ... 551
Gas Engineering Co., Trenton, N. J. ... 554
Humphreys & Glasgow, New York City ... 558
Improved Equipment Company, New York City ... 550
Isbell-Porter Co., New York City ... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind. ... 561
Laclede-Christy Clay Products Co., St. Louis, Mo. ... 554
Lloyd Construction Co., Detroit, Mich. ... 558
Quintard Iron Works Co., New York City ... 557
R. D. Wood & Co., Philadelphia, Pa. ... 570
Riter-Conley Mfg. Co., Pittsburgh, Pa. ... 555
The Gas Machinery Co., Cleveland, O. ... 500
The Stacey Mfg. Co., Cincinnati, O. ... 561
The United Gas Improvement Co., Philadelphia, Pa. ... 563
Western Gas Construction Co., Fort Wayne, Ind. ... 528

PROCESSES.

Bartlett-Hayward Co., Baltimore, Md. ... 569
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Fred Bredel Co., Milwaukee, Wis. ... 551
Humphreys & Glasgow, New York City ... 568
Improved Equipment Company, New York City ... 550
The Gas Machinery Co., Cleveland, O. ... 500
The United Gas Improvement Co., Philadelphia, Pa. ... 563
Western Gas Construction Co., Fort Wayne, Ind. ... 528

SCRUBBERS AND CONDENSERS.

Bartlett-Hayward Co., Baltimore, Md. ... 569
Cruse-Kemper Co., Amler, Pa. ... 556
Davis & Farnum Mfg. Co., Waltham, Mass. ... 568
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Evens & Howard Firebrick Co., St. Louis, Mo. ... 548
Fred Bredel Co., Milwaukee, Wis. ... 551
Isbell-Porter Co., Newark, N. J. ... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind. ... 561
Quintard Iron Works, New York City ... 557
R. D. Wood & Co., Philadelphia, Pa. ... 570
Riter-Conley Mfg. Co., Pittsburgh, Pa. ... 555
The Gas Machinery Co., Cleveland, O. ... 500
The Stacey Mfg. Co., Cincinnati, O. ... 561
The United Gas Improvement Co., Philadelphia, Pa. ... 563
Western Gas Construction Co., Fort Wayne, Ind. ... 528

PRODUCER POWER PLANTS.

Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
R. D. Wood & Co., Philadelphia, Pa. ... 570

TAR AND CARBONIC ACID EXTRACTOR.

Bartlett-Hayward Co., Baltimore, Md. ... 569
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Fred Bredel Co., Milwaukee, Wis. ... 551
Isbell-Porter Co., Newark, N. J. ... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind. ... 561
The Gas Machinery Co., Cleveland, O. ... 500
The Stacey Mfg. Co., Cincinnati, O. ... 571
The United Gas Improvement Co., Philadelphia, Pa. ... 563
Western Gas Construction Co., Fort Wayne, Ind. ... 528

AMMONIA CONCENTRATORS.

Bartlett-Hayward Co., Baltimore, Md. ... 569
Fred Bredel Co., Milwaukee, Wis. ... 551
Michigan Ammonia Works, Detroit, Mich. ... 546
The Gas Machinery Co., Cleveland, O. ... 500
Western Gas Construction Co., Fort Wayne, Ind. ... 528

GAS METERS.

American Meter Co., New York and Philadelphia. ... 575
D. McDonald & Co., Albany, N. Y. ... 575
Helme & McIlhenny, Philadelphia, Pa. ... 575
John J. Griffin & Co., Philadelphia, Pa. ... 570
Keystone Meter Co., Royersford, Pa. ... 574
Maryland Meter and Mfg. Co., Baltimore, Md. ... 574
Metric Metal Co., Erie, Pa. ... 575
Nathaniel Tufts Meter Co., Boston, Mass. ... 574
New York Improved Meter Co., New York City ... 574
Pittsburg Meter Co., East Pittsburg, Pa. ... 558
Rotary Meter Co., New York City ... 573
Sprague Meter Co., Bridgeport, Conn. ... 573

PREPAYMENT METERS.

American Meter Co., New York and Philadelphia. ... 575
D. McDonald & Co., Albany, N. Y. ... 573
Helme & McIlhenny, Philadelphia, Pa. ... 575
John J. Griffin & Co., Philadelphia, Pa. ... 576
Keystone Meter Co., Royersford, Pa. ... 574
Nathaniel Tufts Meter Co., Boston, Mass. ... 574
New York Improved Meter Co. New York City ... 574
Pittsburg Meter Co., East Pittsburg, Pa. ... 558
Sprague Meter Co., Bridgeport, Conn. ... 573

PREPAYMENT METER ATTACHMENTS.

New York Improved Meter Co., New York City..... 574

WATER METERS.

Pittsburg Meter Co., East Pittsburg, Pa..... 558

GAS AND WATER PIPES.

Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Donaldson Iron Co., Emaus, Pa..... 560
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
R. D. Wood & Co., Philadelphia, Pa..... 570

GAS COALS.

Berwind-White Coal Mining Co., New York and Phila. 566
Perkins Co., New York City..... 566
Westmoreland Gas Coal Co., Philadelphia, Pa..... 567

GAS MAIN STOPPERS.

Safety Gas Main Stopper Co., New York City..... 567

MAIN AND SERVICE LAYING.

Sullivan Bros., Flushing, N. Y..... 566

GAS TAPPING MACHINES.

George Light, Dayton, O..... 567
H. Mueller Manufacturing Co., Decatur, Ills..... 551

CANNEL COALS.

Perkins & Co., New York City..... 566

STOKING MACHINERY.

Fred Bredel Co., Milwaukee, Wis..... 551
G. A. Bronder, New York City..... 565
Laclede-Christy Clay Products Co., St. Louis, Mo..... 554
Parker-Russell Mining and Mfg. Co., St. Louis, Mo..... 564

CONVEYORS—ALL KINDS.

Bartlett-Hayward Co., Baltimore Md..... 569
Cruse-Kemper Co., Ambler, Pa..... 558
C. W. Hunt Company, New York City..... 568
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Fred Bredel Co., Milwaukee, Wis..... 551
G. A. Bronder, New York City..... 565
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
The Gas Machinery Co., Cleveland, O..... 500
The Stacey Mfg. Co., Cincinnati O..... 571
Western Gas Construction Co., Fort Wayne, Ind..... 528

CHARGING BARROWS AND COAL WAGONS.

Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
The Stacey Mfg. Co., Cincinnati, O..... 571

GAS ENRICHERS.

Standard Oil Co., New York City..... 519

COKE CRUSHERS.

Bartlett-Hayward Co., Baltimore, Md..... 569
C. M. Keller, Columbus, Ind..... 567

GAS METER CONNECTIONS.

H. Mueller Manufacturing Co., Decatur, Ills..... 551

GAS COCKS.

H. Mueller Manufacturing Co., Decatur, Ills..... 551

GAS GAUGES.

The Bristol Co., Waterbury, Conn..... 560

GAS GOVERNORS.

Chaplin-Fulton Mfg. Co., Pittsburg, Pa..... 570
Connelly Iron Sponge & Governor Co., New York City. 565
Evens & Howard Firebrick Co., St. Louis, Mo..... 548
Isbell-Porter Co., Newark, N. J..... 552
Pittsburg Meter Co., East Pittsburg, Pa..... 554
Reynolds Gas Regulator Co., Anderson, Ind..... 565

CEMENTS.

C. L. Gerould, New Castle, Pa..... 554
Ernst Strassburger, Chicago, Ills..... 564
Laclede-Christy Clay Products Co., St. Louis, Mo..... 554

RETORTS AND FIREBRICKS.

Baltimore Retort and Firebrick Co., Baltimore, Md... 564
Didier-March Co., New York City..... 549
Evens & Howard Firebrick Co., St. Louis, Mo..... 548
Fred Bredel Co., Milwaukee, Wis..... 551
Gas Bench Construction Co., St. Louis, Mo..... 557
Henry Maurer & Son, New York City..... 557
Improved Equipment Company, New York City..... 550
James Gardner, Jr., Co., Bolivar, Pa..... 506
J. H. Gautier & Co., Jersey City, N. J..... 564
Laclede-Christy Clay Products Co., St. Louis, Mo..... 554
Missouri Firebrick Co., St. Louis, Mo..... 564
Parker-Russell Mining and Mfg. Co., St. Louis, Mo.... 564

INCLINED RETORTS.

Baltimore Retort and Firebrick Co., Baltimore, Md... 564
Didier-March Co., New York City..... 549
Evens & Howard Firebrick Co., St. Louis, Mo..... 548
Fred Bredel Co., Milwaukee, Wis..... 551
Gas Bench Construction Co., St. Louis, Mo..... 557
Improved Equipment Company, New York City..... 550
Laclede-Christy Clay Products Co., St. Louis, Mo..... 554
Parker-Russell Mining and Mfg. Co., St. Louis, Mo... 564

VERTICAL S'S.

Connelly Iron Sponge & Gov. Co. (Drake's [Eng.] System) 565
Didier-March Co., New York City..... 549
Evens & Howard Firebrick Co., St. Louis, Mo..... 548
Fred Bredel Co., Milwaukee, Wis..... 551
Gas Bench Construction Co., St. Louis, Mo..... 557
Improved Equipment Company, New York City..... 550
Laclede-Christy Clay Products Co., St. Louis, Mo..... 551
Parker-Russell Mining and Mfg. Co., St. Louis, Mo... 564

REGENERATIVE FURNACES.

Baltimore Retort and Firebrick Co., Baltimore, Md.. 564
Bartlett, Hayward & Co., Baltimore, Md..... 569
Didier-March Co., New York City..... 549
Evens & Howard Firebrick Co., St. Louis, Mo..... 548
Fred Bredel Co., Milwaukee, Wis..... 549
Gas Bench Construction Co., St. Louis, Mo..... 557
Improved Equipment Company, New York City..... 550
J. H. Gautier & Co., Jersey City, N. J..... 564
Laclede-Christy Clay Products Co., St. Louis, Mo..... 554
Missouri Firebrick Co., St. Louis, Mo..... 564
Parker-Russell Mining and Mfg. Co., St. Louis, Mo... 564

SELF-SEALING MOUTHPIECE DOORS.

Bartlett-Hayward Co., Baltimore, Md..... 569
Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Fred Bredel Co., Milwaukee, Wis..... 551
Isbell-Porter Co., Newark, N. J..... 552
Improved Equipment Company, New York City..... 550
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
Parker-Russell Mining and Mfg. Co., St. Louis, Mo..... 564
Quintard Iron Works, New York City..... 557
R. D. Wood & Co., Philadelphia, Pa..... 570
The Gas Machinery Co., Cleveland, O..... 500
The Stacey Mfg. Co., Cincinnati, O..... 571
Western Gas Construction Co., Fort Wayne, Ind..... 528

INCANDESCENT GAS LAMPS.

General Gas Light Co., Kalamazoo, Mich..... 553
Welsbach Company, Gloucester, N. J..... 562

BURNERS.

Wm. M. Crane Co., New York City..... 560

STREET LAMPS.

Thos. T. W. Miner, New York City..... 546
Welsbach Street Lighting Co., New York and Phila.. 562

GAS BLAST FURNACES.

American Gas Furnace Co., New York City..... 552

PURIFIERS.

Bartlett-Hayward & Co., Baltimore, Md..... 569
Connelly Iron Sponge & Governor Co., New York City. 565
Cruse-Kemper Co., Ambler, Pa..... 556
Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Evens & Howard Firebrick Co., St. Louis, Mo..... 548
Isbell-Porter Co., Newark, N. J..... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
Quintard Iron Works, New York City..... 557
R. D. Wood & Co., Philadelphia, Pa..... 570
The Stacey Mfg. Co., Cincinnati, O..... 571
The United Gas Improvement Co., Philadelphia, Pa... 563
Western Gas Construction Co., Fort Wayne, Ind..... 528

(*Continued on page 546.*)

DIVIDEND NOTICE.

OFFICE OF THE UNITED GAS IMPROVEMENT CO., N. W. CORNER BROAD AND ARCH STS., PHILADELPHIA, PA., March 9, 1910.

The Directors have this day declared a quarterly dividend of 2 per cent. (one dollar per share), payable April 15th, 1910, to stockholders of record at the close of business, March 31, 1910. Checks will be mailed.

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(Concluded from page 545.)

VALVES.

Bartlett-Hayward & Co., Baltimore, Md..... 569
Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Economical Gas Apparatus Construc.Co., Toronto, Ont. 560
Isbell-Porter Co., Newark, N. J..... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
Ludlow Valve Manufacturing Co., Troy, N. Y..... 557
R. D. Wood & Co., Philadelphia, Pa..... 570
The Gas Machinery Co., Cleveland, O..... 500
The P. H. & F. M. Roots Co., Connersville, Ind..... 559
The Stacey Mfg. Co., Cincinnati, O..... 571
Western Gas Construction Co., Fort Wayne, Ind..... 528

PURIFYING MATERIALS.

Connelly Iron Sponge & Governor Co., New York City 565
F. Behrend, New York City..... 560
The United Gas Improvement Co., Philadelphia, Pa... 563

EXHAUSTERS.

Connelly Iron Sponge & Governor Co.,New York City 565
Connersville Blower Company, Connersville, Ind..... 572
Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Isbell-Porter Company, Newark, N. J..... 552
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
Piqua Blower Co., Piqua, O..... 557
The P. H. & F. M. Roots Co., Connersville, Ind..... 559

HIGH PRESSURE GAS GOODS.

H. Mueller Manufacturing Co., Decatur, Ills..... 551

PURIFIER AND SCRUBBER TRAYS.

Bartlett-Hayward Co., Baltimore, Md..... 569
Cabot Mfg. Co., Hoboken, N. J..... 567
Western Gas Construction Co., Fort Wayne, Ind..... 528

PIPE LINE TOOLS.

H. Mueller Manufacturing Co., Decatur, Ills..... 551

GAS PLANT TOOLS.

H. Mueller Manufacturing Co., Decatur, Ills..... 551

GAS STOVES.

American Meter Co., New York and Philadelphia..... 575
Keystone Meter Co., Royersford, Pa..... 574
Maryland Meter & Manufacturing Co., Baltimore, Md.. 574
Nathaniel Tufts Meter Co., Boston, Mass..... 574

HOT WATER HEATERS.

Humphrey Co., Kalamazoo, Mich..... 558

GASHOLDERS.

Bartlett-Hayward Co., Baltimore, Md..... 569
Chicago Bridge and Iron Works, Chicago, Ills..... 547
Cruse-Kemper Co., Ambler, Pa..... 556
Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Deily & Fowler Mfg. Co., Philadelphia, Pa..... 572
Economical Gas Apparatus Construc. Co., Toronto, Ont. 560
Kerr Murray Mfg. Co., Fort Wayne, Ind..... 561
R. D. Wood & Co., Philadelphia, Pa..... 570
Riter-Conley Mfg. Co., Pittsburgh, Pa..... 555
The Stacey Mfg. Co., Cincinnati, O..... 571
Western Gas Construction Co., Fort Wayne, Ind..... 528

STORAGE TANKS.

Bartlett-Hayward Co., Baltimore, Md..... 569
Davis & Farnum Mfg. Co., Waltham, Mass..... 568
Quintard Iron Works, New York City..... 557
The Stacey Mfg. Co., Cincinnati, O..... 571
Western Gas Construction Co., Fort Wayne, Ind..... 528

COKE OVEN ENGINEERS.

Albert Ladd Colby, New York City..... 546

PATENTS, TRADE-MARKS AND COPYRIGHTS.

Royal E. Burnham, Washington, D. C..... 567

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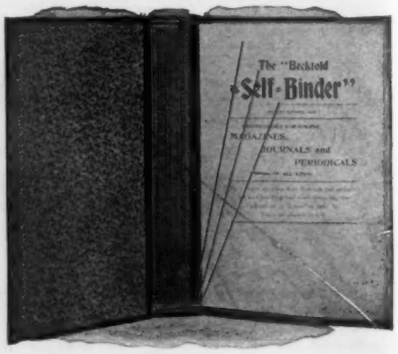

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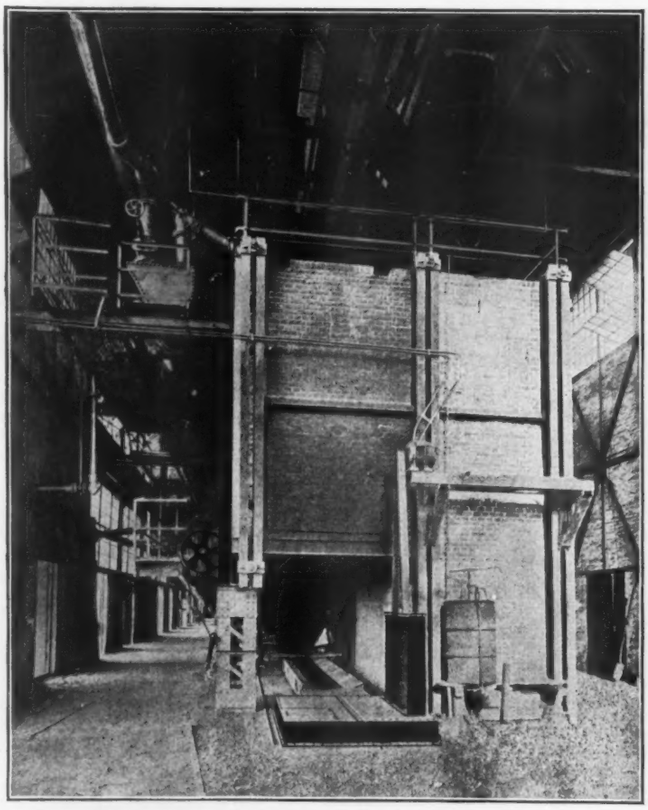

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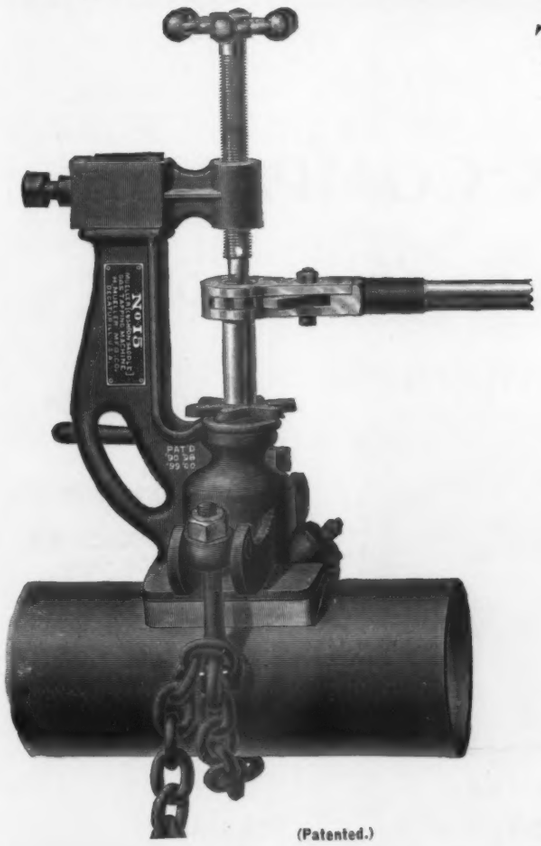

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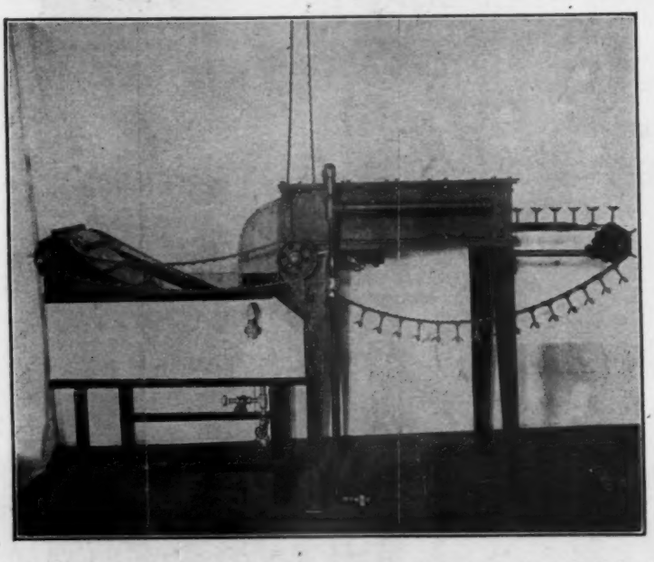

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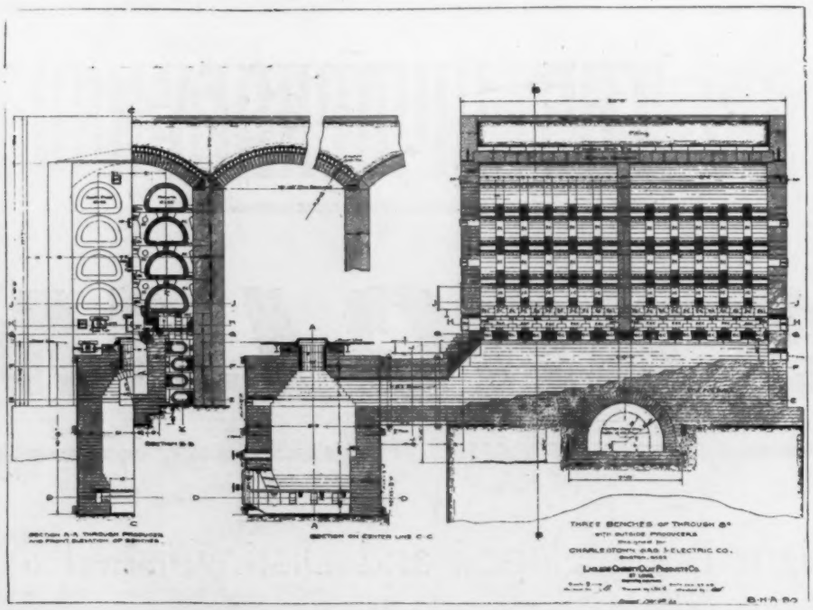

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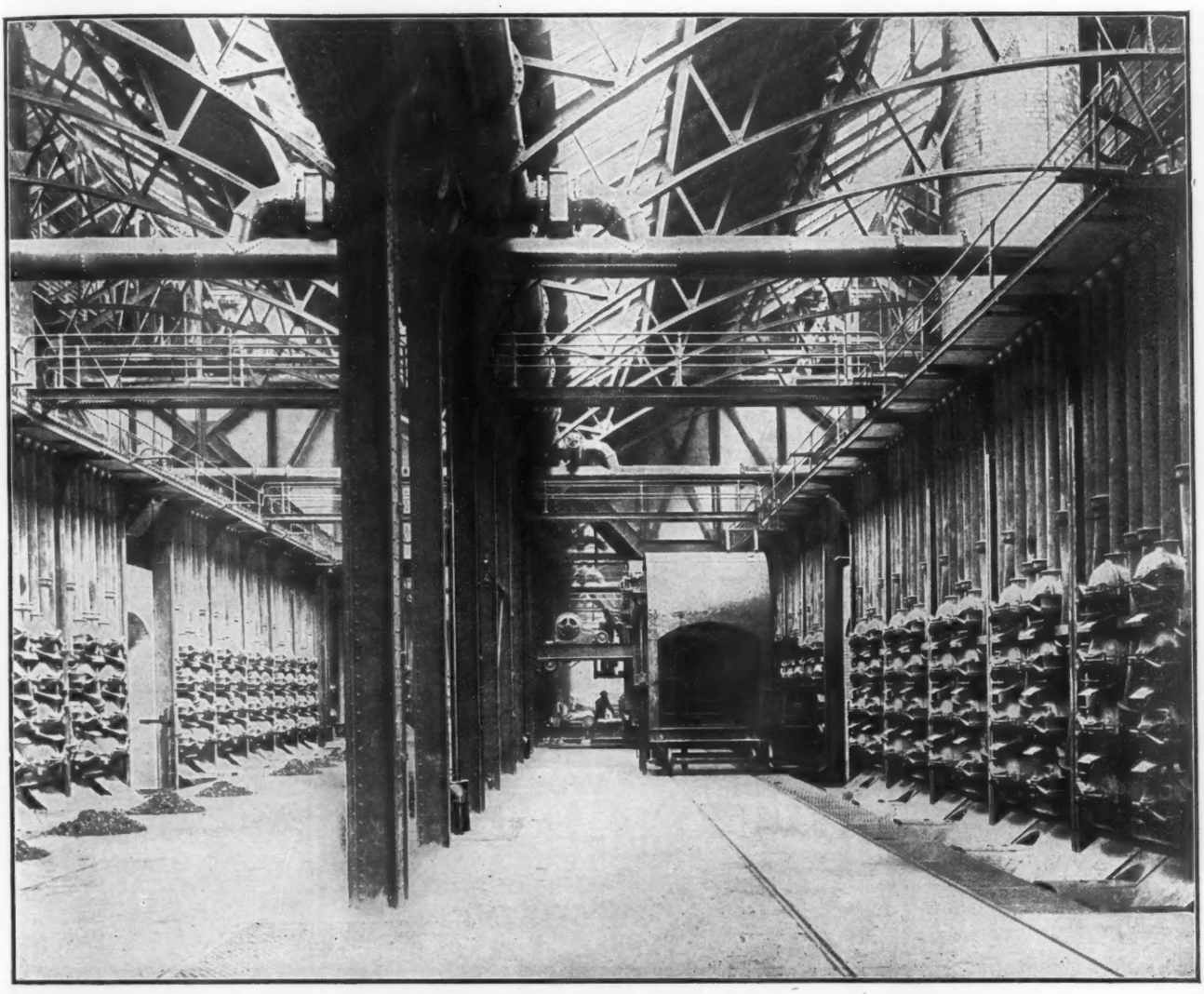

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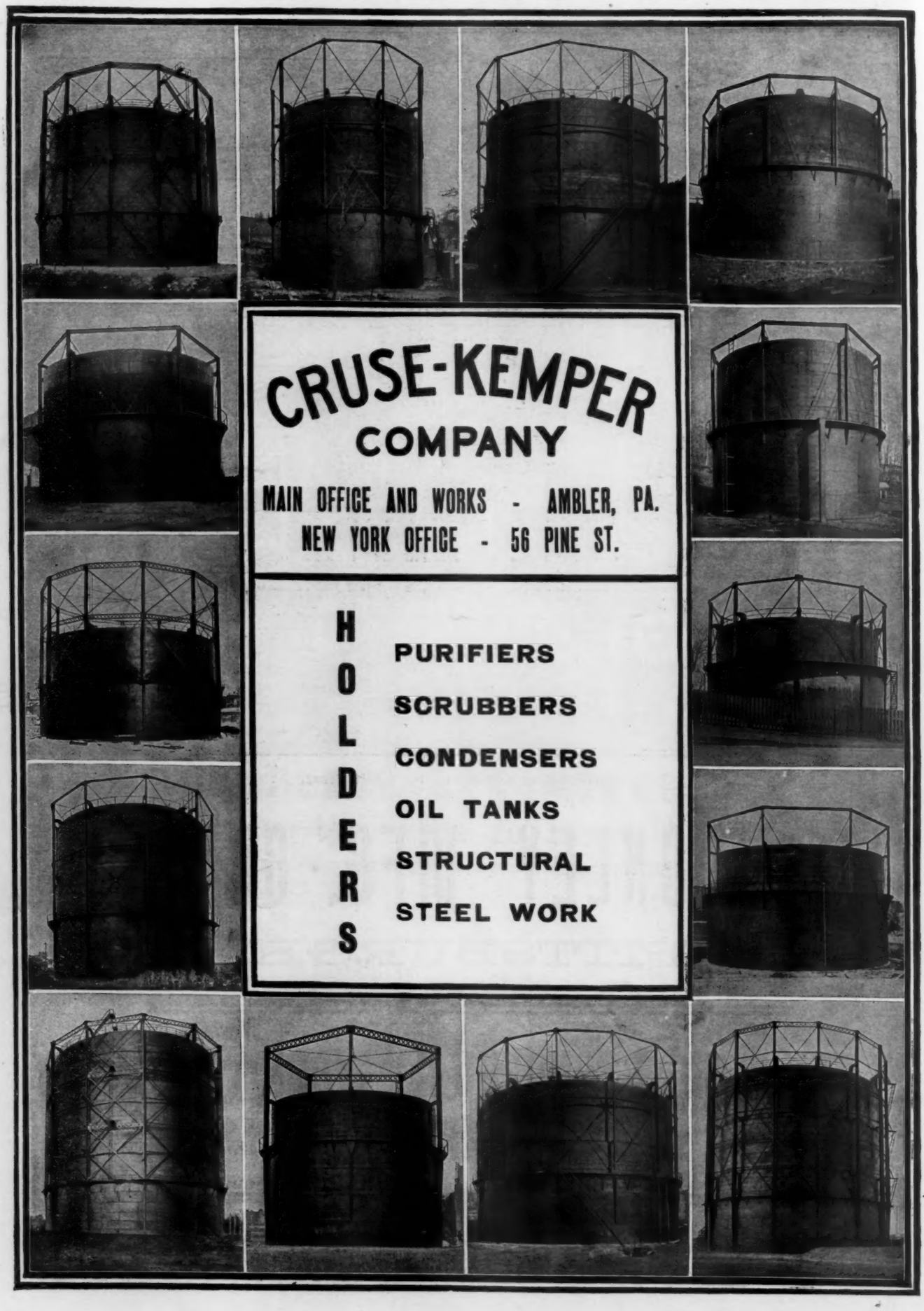
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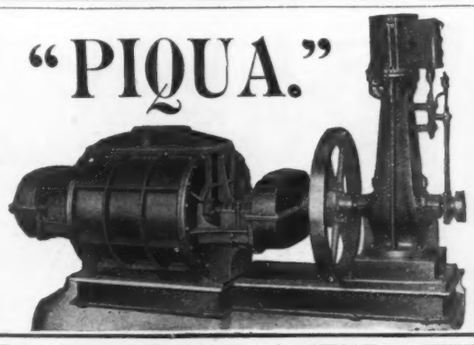

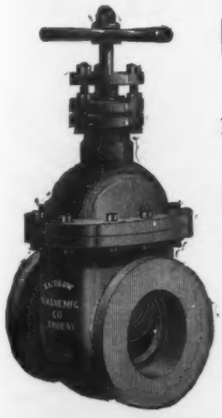

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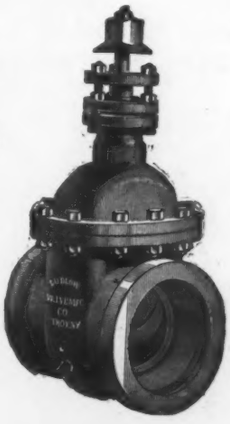

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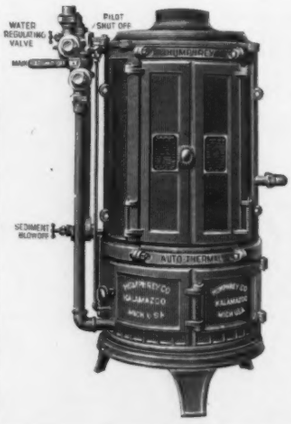

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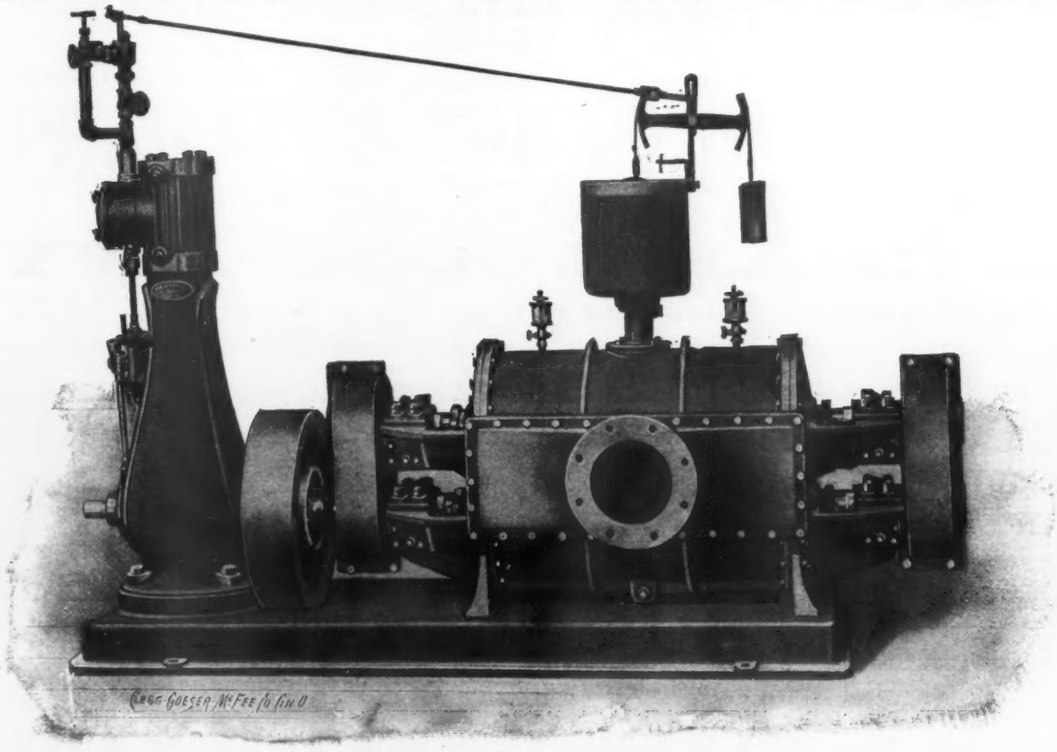
PUBLIC LIGHTING TABLES FOR MARCH, 1910.

[COMMUNICATED BY THE AMERICAN METER COMPANY.]

Day of Week.	Table No. 1. FOLLOWING THE MOON. Date.	Light.	Extinguish.	Day of Week.	Table No. 2. NEW YORK CITY. ALL NIGHT LIGHTING. Date.	Complete Lighting in 1 Hour.	Complete Extinguishing in 50 Minutes.
						From Time Given.	
		P.M.				P.M.	A.M.
Tue.	1	6.20	12.20 A.M.	Tue.	1	5.22	5.32
Wed.	2	6.20	1.20	Wed.	2	5.22	5.27
Thu.	3	6.20 L.Q.	2.20	Thu.	3	5.22	5.27
Fri.	4	6.20	3.20	Fri.	4	5.22	5.27
Sat.	5	6.20	4.20	Sat.	5	5.32	5.17
Sun.	6	6.30	5.10	Sun.	6	5.32	5.17
Mon.	7	6.30	5.20	Mon.	7	5.32	5.17
Tue.	8	6.30	5.20	Tue.	8	5.32	5.17
Wed.	9	6.30	5.20	Wed.	9	5.32	5.17
Thu.	10	6.30 N.M.	5.20	Thu.	10	5.32	5.17
Fri.	11	6.30	5.20	Fri.	11	5.32	5.17
Sat.	12	6.30	5.20	Sat.	12	5.42	5.07
Sun.	13	6.40	5.10	Sun.	13	5.42	5.07
Mon.	14	6.40	5.10	Mon.	14	5.42	5.07
Tue.	15	10.30	5.10	Tue.	15	5.42	5.07
Wed.	16	11.40	5.10	Wed.	16	5.42	5.07
		A.M.					
Thu.	17	12.50 F.Q.	5.10	Thu.	17	5.42	5.07
Fri.	18	1.50	5.10	Fri.	18	5.42	5.07
Sat.	19	2.40	5.10	Sat.	19	5.52	4.57
Sun.	20	3.20	5.00	Sun.	20	5.52	4.57
Mon.	21	4.00	5.00	Mon.	21	5.52	4.57
Tue.	22	4.20	5.00	Tue.	22	5.52	4.57
Wed.	23	4.50	5.00	Wed.	23	5.52	4.57
Thu.	24	No L.	No L.	Thu.	24	5.52	4.57
Fri.	25	No L. F.M.	No L.	Fri.	25	5.52	4.57
Sat.	26	No L.	No L.	Sat.	26	5.57	4.47
Sun.	27	6.50 P.M.	9.10 P.M.	Sun.	27	5.57	4.47
Mon.	28	6.50	10.10	Mon.	28	5.57	4.47
Tue.	29	6.50	11.10	Tue.	29	5.57	4.47
Wed.	30	6.50	12.10 A.M.	Wed.	30	5.57	4.47
Thu.	31	6.50	1.10	Thu.	31	5.57	4.47

ROOTS' GAS EXHAUSTERS.



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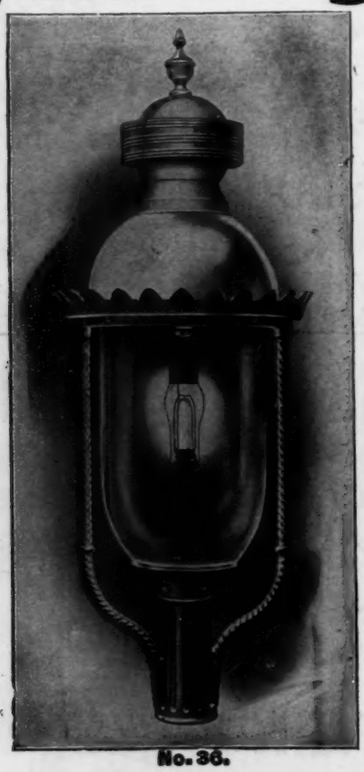

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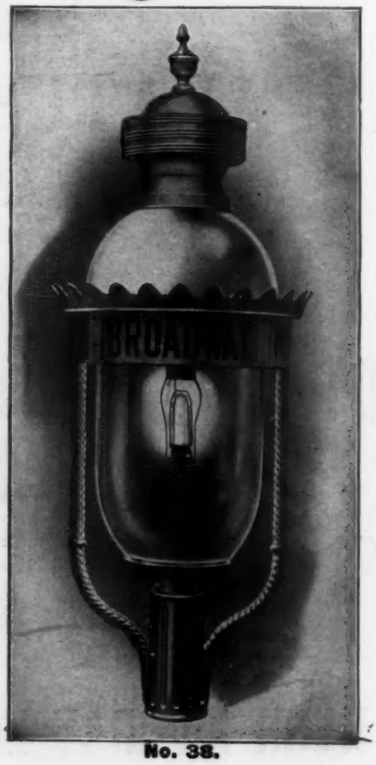

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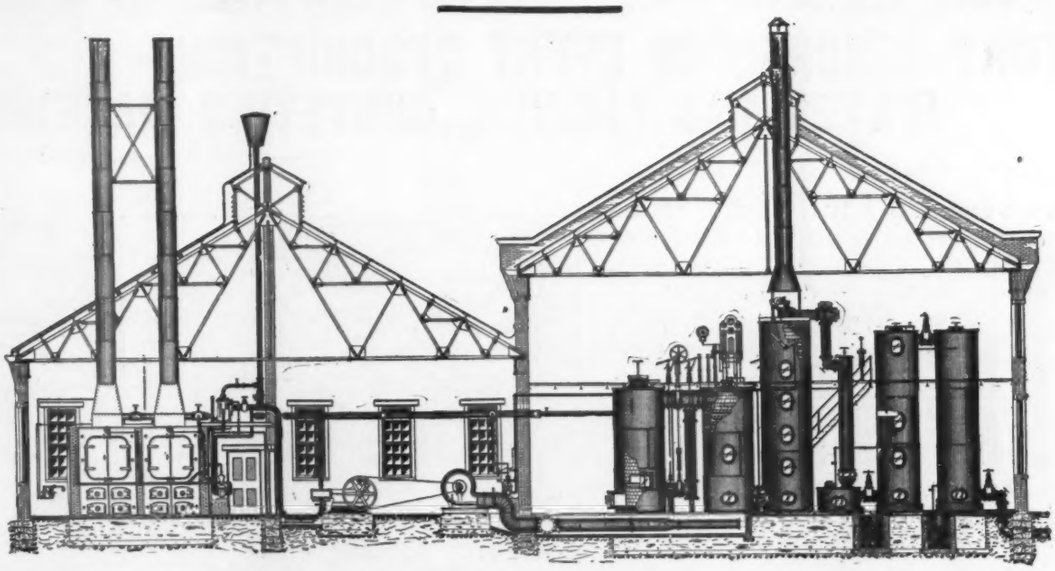

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TOTAL NUMBER OF SETS INSTALLED TO JANUARY 1, 1910, ... 721
TOTAL DAILY CAPACITY TO JANUARY 1, 1910, ... 585,590,000 cu. ft.

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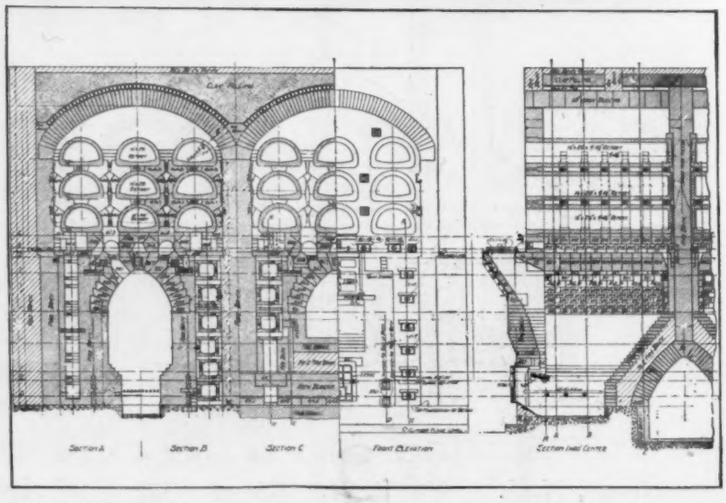

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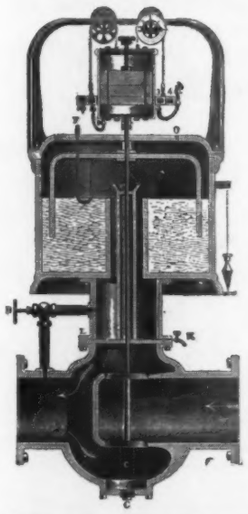

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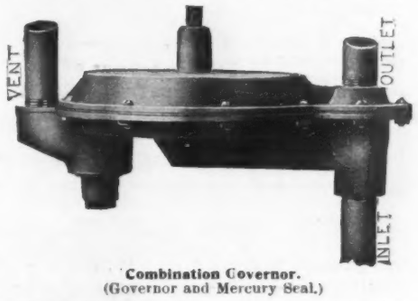

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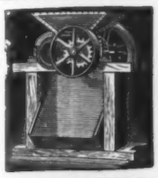

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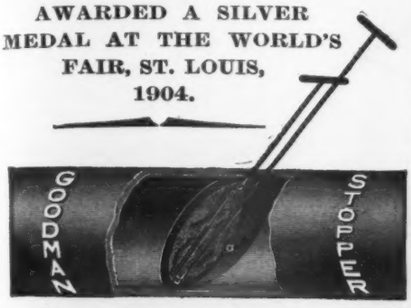

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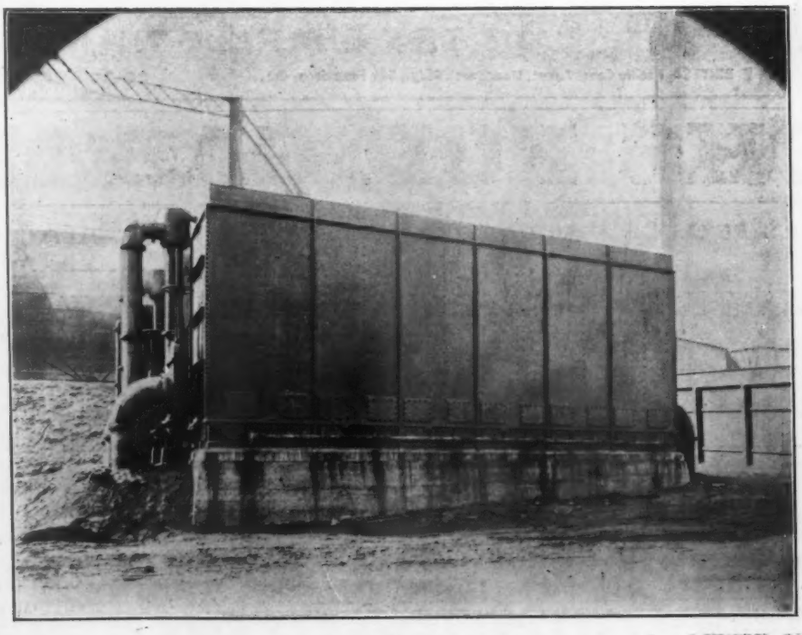

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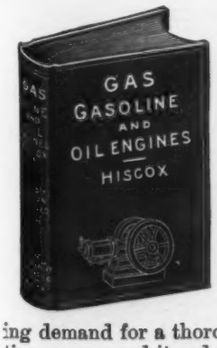

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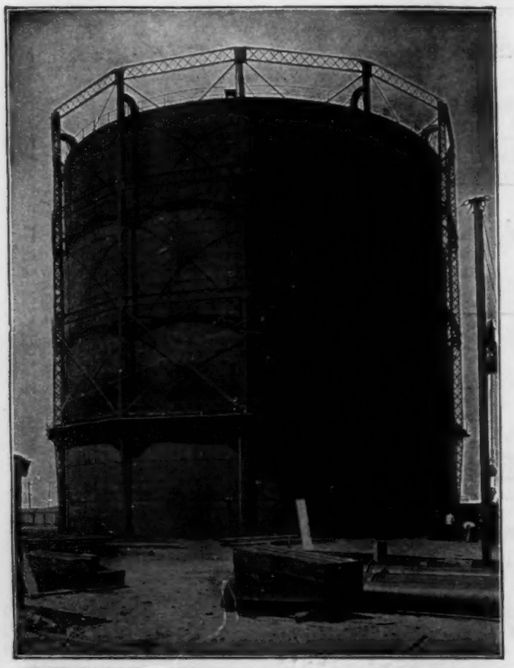

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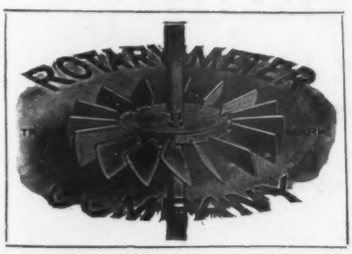

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